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ORIGINAL ARTICLES.

COMPULSORY VACCINATION; SHOULD IT BE ENFORCED BY LAW?

Read before the New York Medico-Legal Society, November, 1896.

BY CLARK BELL, ESQ., LL.D.

PRESIDENT MEDICO-LEGAL CONGRESS.

NEW YORK.

[From advance sheets Medico-Legal Journal.]

This subject came recently before the Medico-Legal Society in the city of New York, introduced by a paper presented by Dr. Montague R. Leverson, in which his position was mainly an assault upon vaccination itself.

Most laymen and the majority of the medical profession have been educated to accept vaccination as a reliable, safe, and the only preventive remedy, to insure against smallpox, and without especial examination the world has accepted the remedy discovered by Jenner, whose centennial has just been celebrated by all the world, even in Japan.

It was not considered quite the proper way to meet the issue in a controversy pro and con, as to the merits of vaccination for this reason, and the issue was broadened and widened so as to embrace this issue:

"Conceding the utility and efficacy of vaccination as a preventive against smallpox should it be made compulsory?"

Owing to the recent agitation in England as to compulsory vaccination and the recent adverse report of the Royal Commission and to the fact that it was alleged to be in contemplation to engraft the idea of compulsory vaccination into the new charter now being formed for "Greater New York," I decided to take the views of some of those best calculated to know the facts germane to such a discussion; and being quite ignorant myself of how the lymph now in general use was obtained, and what supervision or precautions were observed as to its genuineness and purity, I addressed the following letter to boards of health in all the neighboring States and cities and to men eminent in the profession, as to the issues, and especially as to the subject of compulsory vaccination *per se:*

MEDICO-LEGAL SOCIETY,
SECRETARY'S OFFICE, No. 39 BROADWAY,
NEW YORK, Nov. 14, 1896.

My Dear Sir:—I have the honor to enclose a notice of our next meeting and dinner to be held on the 18th of November, instant, and would be glad to see you present and to take part in the discussion of the fourth question on the programme.

4. Conceding the utility and efficacy of vaccination as a preventive against smallpox should it be made compulsory?

May I also ask you to advise me in time for use on that occasion if possible, if not as soon as you can, upon the following additional subjects:

1. What lymph do you use in vaccination and how obtained?
2. Is that lymph obtained by inoculating the calf with the virus of smallpox or from any lymph thus originally obtained?
3. With precisely what lymph is the calf vaccinated and how was that lymph originally obtained for use upon the calf?
4. What supervision is exercised by the board of health, or any public official, over the character, quality and manufacture of the lymph employed in vaccinating the calf, as to its efficiency and genuineness?
5. What security have you that the lymph you use, or that they employ on the calf, is pure?

An early reply will be esteemed a favor.

CLARK BELL.

I submit some of the replies I have received and which were most of them submitted to the Medico-Legal Society in that discussion.

George B. Fowler, M. D., Health Commissioner of New York City, replied to the question as follows in a letter to the Secretary:

My Dear Sir:—Your communication of the 30th, relative to my replying to a prospective paper before the Medico-Legal Society, by Dr. M. R. Leverson, in which he assails "compulsory vaccination," is at hand. This board is not in favor of "compulsory vaccination" and never has been. It is acting under the State laws when it assists the board of education in securing the vaccination of pupils and teachers. So thoroughly has this coöperation been carried out that in the last ten years, during which three epidemics of smallpox have occurred in this city, not a single pupil or teacher connected with the public schools has been reported to this department as suffering with smallpox. The reason the board of health does not believe in compulsory vaccination is because it is believed that such a statute would result in antagonism to the work, which would defeat the object it has always secured in the way of gratuitous and voluntary vaccination and the comparative immunity from smallpox for which this city is noted.

I therefore do not see any reason why I should defend the position that Dr. Leverson proposes to take in this paper.

Yours very truly,
GEORGE B. FOWLER, Commissioner.

Dr. Moreau Morris, M.D., Health Department New York City, replied as follows:

Dear Sir:—To the question, "Compulsory vaccination, should it be enforced by law?" I would respectfully answer, that for a general State law, negatively, but for local purposes in cities or villages having a population of 1,000 or over, where large congregations of school children especially congregate, there should be compulsory vaccination as a precedent to school admission.

The experience of other countries and in this city in suppressing the spread of smallpox, by carefully selected vaccine virus introduced into the human system by proper antiseptic means, seems to set the seal of its legitimacy for public policy and universal protection beyond all question. The public protection is paramount to any and all private interests.

Respectfully yours, MOREAU MORRIS, M.D.,

Prof. Eugene Foster, Dean of the Faculty of the College of Georgia, replied as follows:

My Dear Sir:—Pray pardon my failure to earlier make reply to your letters of September 28 and October 1. Great press of business, together with several absences from the city, has prevented earlier attention to the matter. I very sincerely appreciate the compliment extended in asking me to submit a paper on vaccination to be read on the third Wednesday of November in reply to one to be presented by Dr. Montague R. Leverson. I could not do justice to the subject of vaccination in "a short paper." I have written exhaustively upon this subject in my article on "The Statistic Evidences of the Value of Vaccination," which was presented at the Jenner Centennial at the recent meeting of the AMERICAN MEDICAL ASSOCIATION in Atlanta. This paper you will find in a series of articles which were published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. If this paper does not produce sufficient evidence to satisfy a reasoning man as to the safety and

efficiency of vaccination I could not consent to waste time in arguing the question with him. In my positions on the question of vaccination, I am sustained by almost every reputable medical man in the civilized world. I do not attempt to argue the good policy of compulsory vaccination; this is a question entirely separate and distinct from its efficiency and safety and many of the best members of the medical profession seriously doubt, if indeed they are not actually opposed to, compulsory vaccination. I have had the article above referred to reprinted and will in a short time send you a copy of it if you desire me to do so.

I very greatly regret that I did not know that the copy of the Berlin Report of the Consul General, referred to by you, was not preserved by me, that is, the original received from Surgeon General Sternberg; it was included among the manuscript turned over to the printer with the balance of my article read at the Jenner Centennial.

I will be very glad to have you send me Dr. Leverson's article, as promised in yours of October 1, for the reason that I do not now receive the transactions of the Medico-Legal Society as I formerly did. I am Very truly yours,

EUGENE FOSTER.

Col. W. P. Prentice, counsel for the health authority, replied as follows:

Dear Sir:—I have the honor to acknowledge your letter of the 2nd inst., with its invitation "to prepare" for the meeting of the Medico-Legal Society, on November 18, my views upon the following theme, "Conceding the utility and value of vaccination as a preventive, should it be made compulsory by law."

There can not now be said to be any open question subject to concession in the first clause of your theme, in my opinion; but as the Register of Scotland reported in 1874, "there is but little of that unreasonable opposition to the practice of vaccination" remaining, and the recent report of the Parlimentary Commission of England, of which Lord Herschell was the chairman, following similar reports in Germany and other States, closes the discussion for the present, exhibiting the impracticability of opposition. This result adds strength to the argument for the indirect methods of securing vaccination. I have elsewhere in my book on "Police Powers," discussed this question more at large, and have given reference to many cases, including those which have maintained personal liberty where the public health was not directly endangered. At page 132 this statement was made: "Compulsory vaccination has been instituted in several countries and by the laws in several States in respect to minors. City ordinances regulate it, but the indirect method of excluding children not vaccinated from schools and factories, or in case of immigrants, insisting upon quarantine, and the offer of free vaccination, with the constant supervision of the health officers, are more effective."

This opinion I still maintain, and in common with many others, have not ceased to regret the unwise proceedings which have been occasionally undertaken, in defense of health and sanitary laws, weakening their proper force. The court of appeals' decision in 1895, matter of Smith, (146 N. Y., 68) brings up the sound rule to govern such cases, viz.: That "where a right to restrain the citizen in his personal liberty, or to interfere with his pursuit of a lawful avocation is claimed, to sustain the claim it must appear very clearly, not only that the right has been conferred by law, but that the facts exist justifying its exercise. The validity of the law is not so much called into question as the right to enforce its provisions," the opinion says, and again uses words which I would adopt. "I think no one will dispute the right of the legislature to enact such measures as will protect all persons from the impending calamity of a pestilence, and to vest in local authorities such comprehensive powers as will enable them to act competently and effectively." Little can be added to the lesson of this judgment, and I believe we have at present sufficient laws, if they are duly administered and properly enforced.

I remain with great respect, Yours truly,

W. P. PRENTICE.

Sir Frederick Bateman, of Norwich, England, writes:

UPPER AND GILES STREET, NORWICH, Nov. 4, 1896.

My Dear Sir:—You ask my views on compulsory vaccination. It so happens that this question has much engaged my attention and I send you a pamphlet in which, at page 5, you will see my mature views on this subject. With kind regards,

Yours faithfully, FREDERICK BATEMAN.

The pamphlet referred to is the annual report of the Asylum Union for 1895, by Sir Frederick Bateman, which can not, for want of space, be given, but the summary will be of great interest, which is as follows:

I hold that any individual who from his obstinacy declines to avail himself of the protective influence of vaccination, and thus risks not only his own life, but that of his innocent neighbor, is just as much liable, or ought to be, to punishment by law, as he who knocks his neighbor down, or picks his pocket; and I maintain it is a wicked crime for persons in the broad daylight of the nineteenth century, from obstinacy or ignorance, to refrain from being vaccinated and from having their families similarly protected.

As hypotheses and mere opinions have but little influence, I wish to support these remarks by some documentary evidence in reference to the results of vaccination. During a period of sixteen years, 5,797 cases of smallpox were admitted into the smallpox hospital at Highgate. Of this number 2,654, or nearly one-half, were unprotected by vaccination; of these, 996 died, being 35.5 per cent. Now just mark the reverse; of those properly vaccinated—and I lay great stress on the word "properly," because otherwise these statistics might be pulled to pieces—just under 1 per cent. died; so here you have 35.5 per cent. dying of the unvaccinated, and less than 1 per cent. of the vaccinated.

The latest scientific views as to the value of vaccination may thus be summarized:

1. Vaccination properly performed in infancy, affords an almost complete protection against smallpox up to the period of puberty; but it is important to bear in mind that vaccination is a surgical operation, and should be performed in a satisfactory and careful manner; for many of the supposed failures are in reality due to the careless way in which the operation has been undertaken.

2. That in the few instances in which vaccination may fail to impart absolute protection against the smallpox, it nevertheless, in the majority of instances, modifies the course of the disease, and renders it less fatal, as was strikingly exemplified in the outbreak at Hackford.

3. That at puberty, re-vaccination is strongly to be recommended, and that, as a rule, such re-vaccinated persons may be regarded as permanently protected, although in an epidemic of smallpox, it may be a wise precautionary measure to submit them again to the process of vaccination.

The importance of the subject, and the fact of the recent outbreak of smallpox in this Union, must be my excuse for dwelling at such length on the efficacy of vaccination. The arguments for the necessity of it have been much strengthened by the remarkable discoveries recently made in connection with bacteriology and the antitoxin treatment of disease, discoveries which have been hailed with acclamation in all parts of the civilized world; and I unhesitatingly and emphatically assert that the sanitary authorities will be neglecting their duty, in the face of all this, if they do not resolutely and unflinchingly put into operation the compulsory clauses of the Vaccination Acts.

C. S. Lindsley, M.D., secretary of the State Board of Health of Connecticut, replied as follows.

Dear Sir:—In your courteous invitation to me, on September 1, to prepare a paper "in support of vaccination," there is not a word about "compulsory." In your favor of September 10, you speak of my proposed paper, "defending compulsory vaccination." Defending vaccination and defending compulsory vaccination are two quite different things. I am not an advocate of compulsory vaccination. I am positively opposed to it, but wholly on the ground of expediency. The people of this country are too thoroughly imbued with a sense of personal independence to submit patiently to personal compulsion. The attempt would excite hostility to vaccination that does not exist at present, and would hinder rather than promote the cause of vaccination.

I have received this morning another notice, with an invitation which I regret to say I shall not be able to accept, by reason of other engagements.

Lack of time obliges me to reply briefly to your numerous questions, although they cover enough for a small volume. I will answer them as you have numbered them.

Q. 1. Ans. Sometimes humanized and sometimes bovine virus.

Q. 2. Ans. No.

Q. 3. Ans. From a previously vaccinated calf, and originally from a cow or heifer with vaccine disease.

Q. 4. Ans. In most States there is no legalized supervision.

Q. 5. Ans. My only security is the known care and precaution which are observed by the best producers, except when I

use humanized lymph, and then my own personal knowledge of the health of the subject from which it is taken.

Very respectfully, C. A. LINDSLEY.

Dr. Samuel W. Abbott, secretary Massachusetts State Board of Health, replies:

Dear Sir:—In reply to your kind invitation to be present next Wednesday, I should like very much to be there, but it is impossible.

In reply to your questions:

1. I invariably use vaccine lymph from the calf. There is no objection, however, to the use of human lymph, provided you know that it comes from a healthy source.

2. The original source of the disease in the cow is undoubtedly some exposure to smallpox infection. Experiment has definitely settled this point. The term "spontaneous cowpox" has often been used in this country and abroad in connection with this subject. No progressive physician, however, at the present day, would for a moment admit the use of such a term. Infectious diseases have an origin, and that origin is an infectious disease of the same kind. As a matter of fact, the term is simply used as a catch-penny dodge for lining the pockets of some particular producer of vaccine lymph. I have seen and examined very many cases of cowpox in the cow occurring in large dairies, but these invariably occurred during the progress of epidemics of smallpox, such as those of 1880, 1872 and previous years.

3. Calves are vaccinated either with lymph from other calves or with lymph from healthy children. The latter method is quite as efficient as the former, and is recommended by the very highest authorities in Germany, where this whole subject has been treated in the most scientific manner.

4. Very little supervision is exercised in this country over the production of vaccine lymph. The State Board of Health of Minnesota maintains a small plant and produces lymph of a reliable quality. In my opinion, all vaccine production should be under the supervision either of State or National authorities.

5. The only security now given is the guarantee of the producer.

Finally, the principal fault in vaccine production in this country is due to the fact that the whole question has been treated commercially instead of scientifically. It is, however, pleasing to know that the movement is tending in the right direction.

Recent inspection of vaccine establishments has undoubtedly effected considerable reform, but there is abundant room for more. Too much reliance should not be placed upon bacteriologic inspection of vaccine products made upon a few specimens. No good sanitarian is willing to pronounce upon the quality of a sample of water from the chemic analysis alone, but finds it necessary to have a thorough knowledge of all the surrounding circumstances. The same is true in regard to vaccine production. A well managed establishment under careful supervision, and conducted upon the best principles, may be depended upon to furnish a good product.

The best argument for compulsory vaccination is the present condition of Germany, which has been practically free from smallpox for the past twenty years, in consequence of thorough enforcement of the law. Most of the deaths in Germany from smallpox, in three years, have been those of recent unvaccinated immigrants from Russia, France or Italy.

The Imperial Board of Health of Germany has just issued a publication, entitled "Smallpox and Vaccination," which presents very fully the history of the subject, together with much that is valuable with reference to present conditions in that country. Many conditions are presented which do not reflect creditably upon the condition of the neighboring countries, and show that the prevalence of smallpox in these communities is inversely as the thorough manner in which vaccination and re-vaccination are conducted.

It appears from this document that, in the five years (1889–1893), the death rate from smallpox in the German Empire was only 2.3 in each million inhabitants, while in the neighboring countries it was as follows:

In France	147.6	per million.
In Belgium	252.9	"
In Austria	313.3	"
In Russia	836.4	"

Or, in other words, had the same rates of mortality from smallpox prevailed in Germany as existed in each of these four countries, there would have been a loss by death from smallpox, respectively, of 7,321, 12,584, 15,558 or 41,584, according to the country with which the comparison is made. These figures speak for themselves. It is no wonder that the compiler, in closing the volume, pays a glowing tribute to the memory of Jenner and expresses the hope that "the number of those who look back upon this day (May 14, 1796), with thankful hearts, may continually increase." Yours respectfully,

SAMUEL W. ABBOTT.

Benj. F. Lee, M.D., secretary State Board of Health of Pennsylvania, replies:

Dear Sir:—The matter of which you request information from me to be used in the discussion at the meeting November 18, is of so much interest and importance that I take the liberty of replying to your communication. As a portion of my answer, I send you a copy of *Public Health* for July last, and refer you especially to page 145, on which, and the six pages following, you will find a very full statement of the methods pursued at the Lancaster vaccine farm, the product of which I use exclusively and do not hesitate to recommend.

With regard to questions 4 and 5, I would say, that the State Board of Health makes frequent inspections of this establishment at unexpected times, and that both the precautions taken and the result of the bacteriologic tests, as well as the clinical evidence, convinced me that pure lymph is used in propagation and is dispensed from this establishment. I have the honor to be, Yours very truly, BENJ. LEE.

The extract to which Dr. Lee refers, is from the report made June 15, 1895, by Robert L. Pittfield, M.D., Assistant Bacteriologist Pa. State Board of Health to the committee on preventable diseases of that Board, published in the new journal called *Public Health*, vol. 1, No. 3, p. 145, and relates to the Lancaster County Vaccine Farms, of Marrietta, Pa. A description of the method employed in the vaccination of the calf is given in detail as follows:

11. Vaccination of animal.

a. Description of method.—The animal is strapped to the V. piece with girths, and then is swung over on back, the spinal column does not rest on the table, a space in the cushion accommodating it.

b. Point of selection for vaccination.—The point selected is the scutcheon over the biceps muscle and sometimes anterior to the udder and on the back, but it is considered best by Dr. Alexander to use the scutcheon.

c. Area of scarification.—The area of scarification is about the size of a half dollar, and six to eight are made on each leg.

d. How scarified.—The animal is carefully washed with bichlorid solution, twice shaved and washed, dried with a clean towel, and then scarified with knife previously sterilized. The lymph from the spades is carefully rubbed in.

e. What preparation given the hands. Clothing of operator.—Operator washes his hands in bichlorid, and is dressed in a clean suit of white duck, and every precaution is taken by the operator to keep his person clean.

f. Character of seed used.—The seed used is preserved on spade points in a refrigerator, where all other vaccine matter is preserved.

12. Maturity of vesicle and time of removal.

a. Temperature at highest.—102½ degrees to 104 degrees F., taken twice daily.

b. Removal of lymph.—The operator is guided by the areola about the vesicle, as to the proper time to remove the lymph, also by the temperature. The proper time for removing the lymph is from 5–7 days, depending upon circumstances. The crust is hard to keep in place and is convex rather than concave as in the human subject.

13. Food and water.

a. Regarded by operator.—These play a very important part in the development of the disease. If the least musty food or unpalatable water be given, the animal may refuse to eat or drink for from twelve to twenty-four hours. This will frequently result in an abortive condition of the vesicle. Plenty of good and fresh water is absolutely necessary if you desire a lymph that will give the greatest perfection of development and the least inflammatory action.

b. Character of food used.—Corn chop and bran (half of each by weight), mixed with cut hay in a concrete mixing box, which can be kept clean and will not sour readily, have given them the best results, next to forage crops, of which they use cow-peas and oats, green wheat and rye, clovers, Hungarian millet, and fodder corn. Food from a silo they are unable to use, as it requires from two to three weeks to get the animal accustomed to it, and changing them every thirty days renders it to them an impossible food.

c. Water supply.—Water works, having three large reser-

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voirs arched over in the hill side and supplied with water from two sources; one from the roof water and the other forced by a wind pump from a well 77 feet deep; this water is river water filtered through a sandy loam. All the water from these reservoirs, used for watering stock, operating uses and cleaning purposes, is first filtered through brick, then through Pasteur piates arranged in reservoirs. These reservoirs are located sufficiently high to enable the tapping of water throughout the establishment. They are also connected with the town supply. The cattle are watered by turning water into their troughs, which are lined with galvanized iron. This insures them a much more ample supply than the use of buckets in the hands of employes.

14. Preparation of vesicle.—This is done on the 7th day generally, care by means of a knife.

a. Cleansed.—The parts around the vesicle are cleansed with a solution of bichlorid and are then washed with water.

b. Removal of crust.—This is accomplished with great care by means of a knife, and the parts under this are sponged with sterile water and sponge until all the pus has been washed away.

c. Care taken with vesicle.—The vesicle is carefully cleansed and the lymph, as it exudes, is gathered from the base of the vesicle by means of sterile brushes and applied to the points. The points are not touched by the operator with his hands or person at any time.

d. Application of lymph to points or tubes.—The lymph, by means of brushes, is painted on the points held in wooden clamps holding 50 each.

e. Collection and preservation of seed.—This is collected upon spade points and preserved in refrigerator.

f. Fluid lymph.—Is collected from the cleansed vesicle and mixed in 30 per cent. to 50 per cent. glycerin. It is collected by a scalpel from the vesicle and flows from it into a receptacle previously sterilized. It is then run into capillary tubes.

15. Care of points and tubes.

a. Preparation of naked points.—These are soaked in alcohol and placed on a screen and then a lighted match ignites all the alcohol. They are then placed in a hot air sterilizer for an hour at 150 degrees C. This double procedure is unnecessary.

b. Sterilization of points and tubes.—This is accomplished in a hot air sterilizer.

c. Packing of points.—After the points are inoculated they are dropped from the frames into clean jars, and from these they are packed into glass bottles. There is a minimum amount of handling with the fingers in this operation.

d. Crusts are sold but not advertised.

e. Lymph tubes sufficient for one vaccination are filled by capillary attraction. Other tubes, containing enough for 10, 20 or 50 vaccinations, are filled and corked at one end, the other end is drawn to a point, the lymph is caused to exude by pressing in the cork.

16. Bacteriologic control.—No bacteriologic control is given, but bacteriologic principles bearing upon aseptic sterilization are carefully followed out. Great care is evinced in this direction and much effort has been spent to render the product as clean and aseptic as possible.

Bacteriologic examination of vaccine products.—In common with these of other places, those of Lancaster County Farms were purchased in open market and submitted to the same method of analysis previously described.

Number of bacteria on vaccine points and in fluid lymph:

Product	Gelatin	Agar at 75 degrees
One point	175	. . .
One point	. . .	175
One drop fluid lymph	0	. . .

Summary.—This is an admirable establishment in every particular. No objections could be found in so far as hygienic arrangements go; the farm is thoroughly drained and the interior of the buildings scrupulously clean. The animals seemed well fed and of excellent breeds. The habitual and thorough testing with tuberculin in every animal, in conjunction with the physical examination, is a step in the right direction. It seems a needless precaution to filter water, and to burn off the points before sterilizing them. The excellent bacteriologic showing of the product, purchased with the others in a large drug store, is an index to the hygienic condition of the cattle and the pains taken in removing the lymph to keep it aseptic.

The report of Dr. Robert L. Pittfield from which I make some extracts of matters germane to this discussion in addition to that part of it cited by Dr. Lee, is of great interest. I quote from Dr. Pittfield's report to the Pennsylvania State Board:

"There are a number of problems to be discussed in dwelling on the propagation of vaccine lymph. These concern the elimination of the diseased cattle from the healthy; the sterilization of the points, hands, instruments, etc.; the care of the vesicle; the preparation of the skin; and the aseptic removal of the lymph.

At but two of the stations visited was tuberculin used; in two, the animal was killed and examined before the lymph was sold. The possiblity of infecting points with anthrax bacilli exists, since in many localities cattle are often affected with this disease. At no establishment could we learn of any precautions against such a possibility. In many establishments malignant edema and tetanus bacilli might find their way to the vesicle and thence to the points and tubes, because dust in large quantities abounds in the incubating stables. This is especially true in those farms where the hayloft is directly above the stables, as dust from hay and manure is well known to contain these germs, and such dust could easily filter down directly upon the vesicles. Cases of gangrene and tetanus following vaccination have been reported.

In many places simple cleanliness is sadly neglected; but in others, however, the principles of asepsis and antisepsis are rigidly observed, and lymph from such establishments should be used in preference. Sterilization of the hands, instruments and apparel is a great advance in the right direction, as is a similar treatment of the points and tubes.

The sale of crusts, because of the pus and dust contained in them, should be forbidden by law. Some operators not only render the fresh skin aseptic by scrubbing and antiseptics, but also carefully, clean the base of the vesicle, after the removal of the crust, with antiseptics. If this does not interfere with the taking qualities of the lymph, it is an excellent procedure. In some places we found that the pus layer, for such it is, was not regarded by the operators as pus. In fact, some regard it as a particularly strong lymph and charge their points with it. Such points should not be used. Microscopic examination of this substance reveals pus organisms in large quantities, also typical pus cells.

Points should be placed in frames and carefully sterilized, and after this they should not be handled at all. The application of the lymph to the points by means of a sterile brush is an excellent procedure. It is not only economical, in so far as time and saving of lymph go, but it is also scientific. The individual application of the point to the vesicle irritates it. The point is likely to be contaminated by the fingers, and the drying of these points on dusty, unsterile plates is antiquated and unscientific."

The following is my view of the subject as expressed at the meeting alluded to:

The lateness of the hour, and the presence of other duties which are imperative upon us in completing nominations for the annual election, compel me to abridge my remarks to a consideration of the propriety of compulsory legislation, conceding the utility and efficacy of vaccination, and that the virus is properly prepared and the vaccination carefully conducted.

Upon the law of the matter I am disposed to concur with the views of Col. Prentice.

In case of a threatened epidemic where the safety of the lives of others and general immunity from the spread of the disease was the question, the State it may be claimed would have a right to interfere against the private and individual right as in the case of a conflagration, in tearing down a building in its path to save others beyond it.

It seems to me that enough has already been disclosed in this discussion to make the State hesitate in assuming the extraordinary power of compulsion over an individual protest.

There are well authenticated cases of terrible results, of health permanently ruined and life rendered not alone valueless but horrible by vaccination.

If it should be claimed by the sufferer, that the physician who operated (or the State if compulsory), was liable in damages for the injury it would be impossible to meet or deny the justice of such a claim.

It seems to be true that there is no State or official supervision over the manufacture or sale of the vaccine matter now in universal use, and this, where vaccination is compulsory, is inexcusable neglect. The manufacture is at present a purely commercial and business matter, and it is very doubtful whether the courts would sustain the enforced vaccination of a citizen against his will, without the State itself assumed the responsibility, not alone of the purity of the virus, but of the outcome of the administration.

Those American officials who are in a situation to be best informed upon upon this subject, like Dr. Fowler, C. S. Lindsley, Moreau Morris and others are unwilling to favor making vaccination compulsory. Even while conceding and asserting the power of the State they doubt the wisdom and propriety of

such a law, and on a view of the whole ground, I incline to that view.

The state of the public mind is such, and so great is the doubt and distrust of so large a portion of the educated classes (not the ignorant or prejudiced alone) that it would be very unwise to attempt to legislate compulsory vaccination, without the State at the same time charged itself with responsibility in all cases as well with the purity of the virus used, as against any unfavorable result to the vaccinated.

It is worth our while to consider whether in the face of the Report of the Royal Commission adverse to compulsory vaccination we should hesitate, before we decide—in the absence of any epidemic especially—to enforce by statute such an encroachment upon the personal rights of a citizen as compulsory vaccination with its attendant risks would or might entail, against and over his protest, which might come from the enforcement of a compulsory statute. Again when we consider the views of such men as Dr. Samuel Abbott, Dr. Benj. Lee and especially criticize the careful report of Dr. Robert J. Pittfield to the Board of Health of Pennsylvania in which he reports a careful and critical examination of a large number of the establishments engaged in the manufacture of vaccine virus, that in the major part great carelessness and negligence exists as to the purity of the product; and that no official supervision exists anywhere over this manufacture, should we not consider, in view of the imminent risk to the citizen from the use of improper and injurious virus, that some legislation should protect the citizen, if the enforcement of compulsory vaccination shall be legalized, from the serious consequences following the use of impure virus by the State officials?

GUNSHOT WOUNDS OF THE KIDNEY. REPORT OF TWO CASES.

Read before the Central Wisconsin Medical Society at Beloit, Wis., Sept. 29, 1896.

BY CHAS. H. LEMON, M.D.

SURGEON TO ST. MARY'S HOSPITAL, MILWAUKEE.

Gunshot wounds of the kidney, the history of more than thirty years demonstrates, are among the rarer lesions that come under the surgeon's care. These organs by reason of their deep location escape the accidents that so frequently happen to the other abdominal viscera. Their importance to the human economy, their anatomic peculiarities and relation to the other viscera, the difficulty of making an exact diagnosis at the time of injury before an operation is undertaken or thought advisable, give to the history of individual cases a distinct interest, and will in time make the duty and responsibility of the surgeon clear, as additional light is shed upon this class of lesions in the operating room as well as at the postmortem table.

Long before the era of antisepsis the necessity of providing free drainage in wounds of the kidneys was emphasized by Larrey and Dupuytren. The wisdom of this procedure was unrecognized or unheeded by the surgeons during the war of the rebellion. Of the seventy-eight cases of gunshot wounds of the kidney reported in the surgical history of the war, but twenty-six cases recovered. All were treated upon the expectant plan; no incisions for the purpose of exploration were made.

Perhaps we can not form a correct estimate of the dangers which, though present in a small degree today, confronted the men who tried to solve the problem of life and death for the victims of kidney lesions which come under their care, often with complicated injuries, in the preaseptic era represented by the surgery of our civil war. The accumulated experience had taught in addition to the fact that adjacent viscera were often wonnded, that these penetrating gunshot wounds, unlike incised wounds of the kidney, were not likely to be followed by urinary infiltration of the retro-peritoneal tissues. This experience which has been corroborated since, demonstrated that in gunshot wounds "the eschars lining the tract, protect the parts until a limiting wall of inflammatory exudate has taken place." Therefore in cases which in the beginning presented no urgent symptoms, it is not to be wondered at that the surgeons feared less the infiltration of urine and the formation of abscess than the more urgent and dangerous sepsis which too often followed the making of large incisions.

In this connection I would call attention to the fact that some of the complications of these wounds of the kidney were wounds of the stomach, spleen, liver, diaphragm, intestines lungs and spine. Such cases were usually rapidly fatal as can be well imagined, from shock and hemorrhage. I think that in the history of the cases that I shall relate I will convince you that the diagnosis must often be extremely doubtful and the symptoms misleading in many of these cases which shall be treated in the future, and that more often will the surgeon resort to exploratory incision to settle the question rather than rely upon being able to accomplish at the end of twenty-four or forty-eight hours what could be done with much less risk and a better prognosis within, say, a few hours at most subsequent to the reception of the injury.

We are so accustomed to the graver operations upon the kidney that are being made today that we are apt to forget that the first nephrectomy as a deliberately planned operation was made as recently as 1869, by Gustav Simon of Heidelberg, and that the operation of nephro-lithotomy was first performed by Morris in 1880. These two men have immortalized themselves by their work upon the kidney alone. The monograph published by Morris in 1844 is a classic that commands the attention of the student and has been quoted by every text-book and author who has written a line since upon the surgery of the kidney.

To those who are interested in the treatment of gunshot wounds of the kidney I would commend in addition to this book the admirable and exhaustive paper read by Professor Keen before the American Surgical Association this year, and published in the August number of the *Annals of Surgery*. He has tabulated all the cases of traumatism of the kidney that have been reported since 1878. In this list are nineteen cases of gunshot wound of the kidney, and there are given in a table the name of the operator, the nature of the injury, the treatment, operative or or non-operative, the result and a short comment. Of these nineteen cases ten recovered and nine died.

With these few remarks as an introduction, I take pleasure in relating the following two cases, employes of the Milwaukee Electric Railway & Light Company, which came under my care.

Case 1.—On the night of June 4, 1896, during the recent strike of the employes of the Milwaukee Electric Railway and Light Company, as an electric car was making its way from a suburb of the city of Milwaukee, the car was fired upon from ambush, by unknown persons supposed to be sympathizers with the striking employes. Both the motorman and the conductor were struck by flying bullets, the latter being wounded in the thigh by a bullet which lodged under the skin on the

outer aspect of the right knee. This bullet, which I removed an hour or so later, was of 32 caliber. The motorman, Jno. B. aged 27, white, a Canadian by birth, was struck in the back, about 2 inches to the left of the spinal column and opposite the second lumbar vertebra, by a ball which passed upward, inward and forward and lodged somewhere in the anterior aspect of the chest, under the costal arch. The shock of the wound brought the man to his knees, but he still maintained his hold upon the controller of the motor and turning on the full current, the car struck a tree which had been thrown across the track and swept it out of the way, and amid a fusillade of bullets the motorman brought his car out of danger, with the conductor lying wounded on the floor. He ran the car fully a mile before anyone could relieve him, and was conveyed as quickly as possible to the Johnston Emergency Hospital, reaching there about 10 P.M.

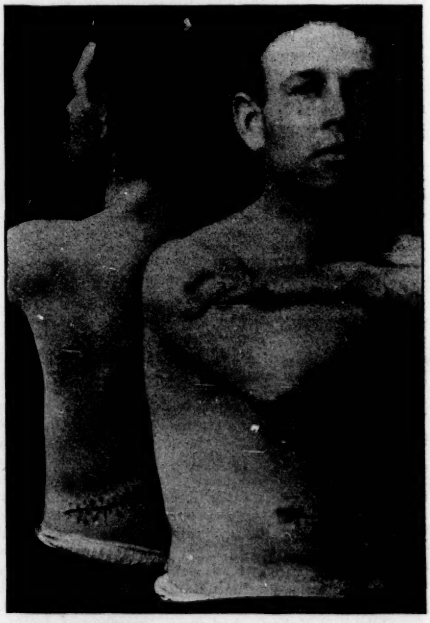
At the time of admission the temperature was normal, the pulse 72, respiration about 30. The man showed little evidence of shock. The only thing in his condition that was particularly noticeable was a look of anxiety. No blood escaped from the wound in the back and I was inclined at first to the belief that no serious damage had been done by the bullet. A slight probing of the wound showed its direction to be upward and inward, and thinking that possibly the kidney might have been injured, I asked him to pass his water, and he replied that he could not. I then catheterized him and drew off about a quart of bloody urine. Some ten minutes later the catheter was again passed, and the urine which was drawn was heavily mixed with blood and clots. A priest having been sent for at the man's request, I asked Drs. Sperry and Purtell to see the case in consultation.

Knowing that the kidney was wounded, from the presence of hematuria, and being in doubt as to the character of the injury the kidney had sustained, an exploratory operation was deemed advisable and a lumbar incision decided upon. With some difficulty, owing to an accident to our bullet probe, the left kidney was exposed by an incision along the track of the bullet. Upon reaching the perinephritic tissue a considerable amount of clotted blood and urine was found, which upon being removed disclosed a wound in the inferior convex border of the kidney sufficiently large to admit the finger. A long probe being introduced into the wound could be passed sufficiently far to demonstrate that the ball had not lodged in the kidney, and as the direction of the wound was such that I felt certain the pelvis of the kidney had not been perforated on its anterior border, no further exploration was made. The ball had traversed the inferior portion of the kidney and approached closely its pelvis.

The hemorrhage into the wound, though not rapid, was constant, and I plugged the ragged tear which the eye could see, with a strip of iodoform gauze, bringing it out at the upper anterior aspect of the wound. I sutured the deep structures of the back with catgut in layers, providing a gauze drain in addition to the kidney drain, along the track of the bullet at the inferior and posterior angle of wound, the suturing of the skin and underlying structures being made between these drains.

During the twenty-four hours subsequent to the reception of the injury a considerable quantity of urine and blood was discharged through the wound which decreased in quantity during the second day and ceased altogether on the third day. The dressings were changed several times during the first forty-eight hours and some idea may be obtained of the amount of urine which escaped through the wound during the first two days, by noting the fact that the amount of urine drawn from the bladder the first day was but 26 ounces, the second day 31 ounces and the third day 47 ounces, this being the day the urine ceased passing through the wound. No suppuration occurred in the wound. A few days later the gauze was removed from the bullet track, allowing the track to heal and the second piece of gauze leading down to the kidney was gradually withdrawn, the wound being completely healed at the end of four weeks. The temperature curve was of no special moment, reaching its highest point, 100.8 degrees, thirty-six hours after the injury from which it gradually declined until the tenth day, when it reached the normal point. The highest pulse rate was 110 on the third day. The respiration deserves special notice, remaining for forty-eight hours subsequent to the injury between 36 and 42 to the minute. The catheter was used for three days, and ergotol in 15 minim doses was given for three days every four hours. In addition to this, owing to the fact that the man was suffering from a declining gonorrhea, acetate of potash in 15 grain doses was given three times a day, and the bladder washed with a saturated solution of boracic acid. The day following the injury, the symptoms, which were of no moment at the time of injury, assumed an alarming character. The man complained of pain in the right iliac region, the abdominal muscles were rigid, his expression was anxious in the extreme and I feared that in making the lumbar operation I had overlooked a possible perforation of the intestines. By the third day the symptoms had improved, the bowels had moved successfully and the blood which had continued mixed with the urine in considerable quantity with the presence of clots began to decrease in amount, and at the end of ten days had ceased altogether.

Little else than milk was given for diet for three weeks and the man when discharged from the Hospital at the end of four weeks was considerably emaciated and left the city to recuperate at his home in Michigan. I regret to say that owing to an excessive amount of work incident to the strike, I neglected to make a microscopic examination of the urine, the only notes being those of the record sheet, which show that while pus persisted in the urine for two weeks, at the time of his discharge the urine was clear. The patient spent the greater part of the summer on a farm in Michigan and I saw him the other day, looking well and strong, completely restored to health, his only complaint being of an irritation from the probable presence of the bullet in the left chest wall.



Richard R., Case 2.—Wound healed in ten days.

Case 2.—Richard R., aged 25, German, single, white, of splendid physique, was shot by accident with a 32 caliber revolver at three feet distance, Aug. 17, 1896, 9 A.M. The person handling the revolver stood somewhat to the right of Mr. R., and the ball struck him in the anterior chest wall about two inches to the left of the nipple line. Mr. R. complained of no pain at first, walked to the rear of the building and sat down on the outside steps. As I was not at home, the case was first seen by Dr. Hamilton, who had the man removed to St. Mary's Hospital, where I saw him in consultation about an hour later. At this time the patient's face wore an anxious expression, he complained of severe pain in the right iliac region, his abdominal muscles were rigid, the respiration was rapid, pulse accelerated and he was sweating profusely. The man complained of no pain in the chest, there was no cough, no hemoptysis, and no abnormal dullness over the right side of the chest that could be made out by percussion. The area of liver dullness was normal. Being in doubt as to whether the bullet had penetrated the chest wall, it being impossible to insert a probe after

a careful disinfection of the wound, I made a small incision with the bullet hole as a center, and found that the bullet had struck the upper border of the ninth rib, tearing off a small portion of the periosteum and had penetrated the parietal surface of the pleura. A further exploration being deemed inadvisable, the wound was packed with iodoform gauze and the patient put to bed to await developments.

At 2 P.M. the man was restless with a temperature of 99.6 degrees, pulse 72, respiration 84. He had passed no water and could pass none. Although he was suffering from an acute gonorrhea, I catheterized him, as I for the first time suspected that the kidney had been wounded. Twenty-four ounces of bloody urine was passed at this time. Twenty minutes later, I again passed the catheter and drew off two ounces of urine heavily loaded with blood. With the consent of Dr. Hamilton, I asked Drs. Purtell and Sperry, who had assisted me in the first case, to see this case also. The man was anxious to have the bullet removed if possible and consented to an exploratory operation of the kidney. From the fact that the pain complained of was upon the right side, I inferred that the right kidney had been wounded, notwithstanding that the person who did the shooting stood to the right of Mr. R. and that the wound of entrance was to the left of the nipple line. What direction the bullet took after entering the chest and what deflected it, whether it was a vertebral body, or a rib posteriorly, we had no means of ascertaining. The wound of the rib anteriorly was but slight, being upon the upper border, and we inferred at the first examination that the bullet had either gone upward into the chest or passed directly backward. The man being chloroformed, I made the usual incision in the right groin, parallel with the last rib, to expose the kidney. Upon reaching the fatty tissue surrounding the kidney, I found a wound showing that the ball had passed through it, and I could trace the track of the bullet with the finger for a short distance in the iliac fossa. The kidney was thoroughly exposed and freed from its fatty capsule over the inferior portion and a careful exploration of the kidney between the thumb and finger showed the wound of exit through the kidney to be a ragged hole, easily admitting the index finger on the posterior surface of the kidney, about its center, one inch external to the renal pelvis. Unlike the first case, no clotted blood was found around the kidney and there seemed to be little or no extravasation of urine. Dr. Hamilton and Dr. Purtell each palpated the kidney. The hemorrhage being slight, I was satisfied that no serious damage had been done to the kidney substance, and I did not feel justified in further separating the kidney from its bed to examine the wound of entrance into the kidney, and I at once proceeded to close the wound without irrigation, having first packed a strip of gauze into the wound on the posterior surface of the kidney, bringing it out at the anterior portion of the lumbar incision. The deep structures were sutured with catgut in layers and the skin with silkworm gut.

The after-treatment in this case was similar to that in the case already described. Ergotol for the first few days, with the citrate of potash.

During the forty-eight hours subsequent to the reception of the injury, the urine was bloody and contained clots of blood. On the fourth day in the forenoon there was considerable blood in the urine without clots, and after this neither blood nor clots. The urethral discharge due to the gonorrhea was profuse for a few days. As the pus had been carried into the bladder at the time of the first catheterization, the bladder was washed daily with warm water and boracic acid. No pus appeared in the urine until the thirteenth day. The amount of pus decreased steadily until the twenty-first day. Afterward it could be detected only by the microscope. I made a uranalysis on the fourteenth day, with the following result: Reaction, acid; specific gravity, 1020; pus; blood (traces); hyaline casts, a few epithelial casts; albumin, marked.

A uranalysis at the end of the fourth week showed: Reaction, acid; specific gravity, 1020; albumin, none; blood, none; pus, traces; casts, none. The diet was restricted to milk and water for eighteen days.

On the seventeenth day the temperature, which had not exceeded 100.8 degrees, suddenly rose to 102.6, owing to the onset of an attack of epididymitis on the right side. On the following morning the temperature dropped to 98.8. Three days later a second rise in temperature to 101.6 occurred, with an increase of the epididymitis, and from this time on it decreased until the twenty-first day, when it reached the normal point and remained there. In this case, as in the former case, the respiration was accelerated; for more than two weeks it remained between 34 and 36 to the minute. The pulse was normal with one or two slight exceptions, during the entire convalescence.

Mr. R. left the hospital at the end of four weeks, and at the present writing he is rapidly regaining his lost strength.

A fact worthy of notice in both of these cases was the rapid emaciation which took place during the first three weeks. Case 1 lost forty pounds in weight in three weeks, and Case 2 lost fifty-eight pounds.

The regaining of weight after being placed on general diet and allowed to exercise was almost as rapid, Mr. R., Case 2, having gained nineteen pounds in two weeks.

Another fact deserving of mention is that both men were suffering from gonorrhea at the time of injury, and notwithstanding the introduction of the catheter, neither of them developed a cystitis. The pus in the urine in Case 2, of which I have a more exact record, did not appear until the thirteenth day. It was evenly mixed with the urine when voided and resembled that so frequently seen in cases of pyelitis.

The absence of pus in the urine for more than ten days subsequent to the injury and its appearance subsequent to that time, may, I think, be attributed to the sloughing incident to the process of repair in the kidney itself. This supposition is strengthened by the observation that at times the urine was free from pus, at others quite heavily loaded with it.

The wound in the anterior chest wall, which was packed at the time of the accident, was sutured by Dr. Hamilton on the fifth day, and healed by primary intention.

On the third day I dressed the lumbar wound, and noticing that but little exudation had taken place and that the presence of urine could not be detected, I withdrew the gauze with which I had tamponed the kidney, and allowed the wound to close. Primary union took place and I removed the stitches the tenth day, the wound being completely closed.

The record of these two cases, similar in many of their details, examined from the post-operative standpoint, seem to present conflicting conclusions as to the indications for operation.

The symptoms presented a few hours subsequent to the reception of the injury in each case were misleading as an indication of the character of the lesion sustained. In Case 1, in which the kidney sustained the greatest damage and in which at least one-third of the urine secreted in the forty-eight hours after the operation was passed through the lumbar wound, the patient at the time of operation showed little evidence of shock, complained of no pain, and apparently had suffered but slight injury. These symptoms, however, during the next twenty-four hours were replaced by those of grave character, so much so that I feared the intestines had been wounded, and that the man was developing a general peritonitis.

From conclusions drawn from a study of the cases reported during the war and subsequently, I am convinced that without operation providing for free drainage in the lumbar region, that this case would have been either fatal from extravasation of urine and

the formation of abscess in the retro-peritoneal tissues, or at best have recovered after an illness of long duration.

In Case 2, the symptoms at the time of the first examination were of an alarming character. Twenty-four hours subsequent to the operation the patient was resting quietly, complained of no pain and was in every respect in splendid condition, having passed no urine through the lumbar incision. This case I believe might have recovered without operation, as at the time of operation we found no extravasated blood or urine in the peri-renal tissues. Yet without operation we would have remained in the dark as to the character of the lesion and would be without evidence that the ball, failing to make its exit from the body, had not lodged in the kidney itself.

I have been impressed by a study of these two cases with the fact that beyond a knowledge that the kidney has been wounded made evident by the hematuria, in a gunshot wound of the kidney, we can form but little idea from the character of the early symptoms as to the extent of the damage that has been done. I, of course, will except an injury which severs the large vessels leading to or from the kidney in which the evidences of internal hemorrhage would manifest themselves very early. In both of these cases, after a careful deliberation, I made a lumbar incision to the kidney for the purpose of exploration, believing that from the direction of the bullet in the one case, and from the known position of the person who did the shooting in the second case, that the other abdominal viscera had not been wounded.

The comparatively uneventful recovery made in each of these cases, demonstrates that the operation, if it were conducive of no good, at least did no harm.

In this connection I can but quote the words of Professor Keen in the article above alluded to, in which he says: "If the surgeon has reasonable evidence that the kidney has been probably traversed by a ball (and all the more so if it is certain that it has been so wounded) and the patient is evidently in grave danger, as shown by the general symptoms of internal hemorrhage and by the physical signs of a large lumbar hematoma, or of intraperitoneal bleeding. I take it for granted that all of us would recommend an exploratory operation with a view of determining the extent of the injury to the kidney and the proper treatment."

The question whether a case of gunshot wound of the kidney shall be treated by the operative or the expectant plan is one that in most instances will be difficult to decide. The indications for early exploratory incision, with or without nephrectomy, have been most admirably stated by Professor Keen in his recent article cited, and I would refer you to it for counsel.

Notwithstanding the rarity of this lesion, it is one that may confront any of us without a moment's warning and I have reported these cases at length in the hope that something may be added to the meager knowledge we already possess upon this interesting subject; or at least that the report of these cases may stimulate further research into the literature of the subject. Notwithstanding the fact that I failed to find the bullet in either case, I believe that a better prognosis can be given to each of these young men from the knowledge that we possess, that the kidney was not a receptacle for the bullet.

I trust further that I have demonstrated in both cases that when in doubt as to the advisability of operating, we can be comforted by the knowledge that an aseptic exploration of the kidney under chloroform anesthesia adds little or no risk to the patient.

THORACOPLASTY IN AMERICA AND VISCERAL PLEURECTOMY, WITH REPORT OF A CASE.

Read in the Section on Surgery and Anatomy, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY ALEX. HUGH FERGUSON, M.D.

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When I forwarded the title of my paper to the Chairman of this Section, I had no idea but that I should now have several interesting cases of Schede's operation performed in America to lay before you. Being disappointed by a personal research of the periodicals published in this country, I applied to the American Bureau of Medical Literature, at Washington, D. C., and in due time I received the following reply: "We have been unable to find any case of Schede's operation performed in America." There is no doubt in my mind but that this major operation has been done many times in this country, though not reported. Thoracoplasty, as first done by Schede, is an heroic measure for the otherwise hopeless cases of chronic empyema. It consists in the removal of the chest wall, that is the ribs; intercostal muscles and parietal pleura are extirpated, then curettage of the visceral pleura is done, and the raw surface of the large flap raised external to the ribs is allowed to come in direct contact with the bound down lung and its pleura. The external incision is very extensive and horseshoe in shape, extending in a sweeping curve from the vertebral border of the scapula downward to the lower ribs, and then upward to the nipple or beyond it in front. Whatever may be the cause or causes of the empyema, some cases there are which survive the aspirations, the pleurotomies and permanent drainage, or the resection of a portion of one or of several ribs, as advised by Estlander. In spite of all these procedures a few cases are not cured, and these urgently plead for relief from the foul, purulent material constantly pouring out of their side, and day by day vitiating and weakening the already overburdened constitution. Upon being confronted with one of these cases, too much stress can not be placed upon a thorough examination of the various organs of the body, particularly the lungs, for if these be markedly tubercular, no operative procedure should be undertaken. When the opposite lung is in a good healthy condition, even though the compressed one manifests signs of consolidation and breaking down, an operation may be advised, provided the patient be otherwise in a condition to stand it. If the sputum be free from tubercle bacilli, even though amyloid degeneration be quite obvious, and the person able to be about, thoracoplasty should be done. The assertion made by Schede, that amyloid degeneration and tuberculosis does not contraindicate this operation, is true within certain limits, and this the author verified by his results. A practical clinical observation, that is, the disappearance of the signs of amyloid degeneration of the internal organs, when the cause was

removed by operation, was a well known one to surgeons in pre-antiseptic days, occurring in those cases making a speedy recovery from the operation without much or any suppuration. It was observed by Rahlmann and Kubly that after partial extirpation of amyloid conjunctival tumors, the portions left became completely absorbed. (Thoma, Vol. I, p. 397.) We may conclude that an improvement of a diffuse amyloid degeneration caused by an empyema will begin to occur just as soon as the formation and discharge of pus is prevented. The condition of the kidneys is important. There may be albumin in the urine, signs of organic disease of these organs; but under what conditions are we to say that a case is operative or not on this account? We so often break through all rules, and yet our cases recover, when the apparently diseased kidneys would seem to contraindicate an operation, that a hard and fast rule does not obtain. More risks can be taken in amyloid or waxy kidney, provided we are able to remove the cause of such a degeneration. The amount of urea in the urine is the more valuable from a prognostic standpoint. The dangers ahead of a person suffering with a profuse suppurative discharge and fever are 1, septicemia and pyemia; 2, amyloid disease, and 3, tuberculosis, all of which may be obviated by a timely operation.

The indications for Schede's thoracoplasty are very clear. The chest wall has not collapsed after Estlander's operation, a suppurating cavity persists, complications are imminent, and there is not the slightest hope of recovery without further interference. Such a case has invariably been ineffectually treated by 1, aspiration; 2, pleurotomy, drainage and irrigation; 3, resection of one rib for more efficient drainage; 4, Estlander's thoracoplasty, curettage, packing with gauze and frequent irrigations. Just as soon as it is recognized that the cavity has no tendency to become obliterated by these procedures, the earlier Schede's operation is performed the better, and should a cure be not effected by it within a reasonable time, then visceral pleurectomy is the climax of operative procedures to which we shall resort. The following is the report of my case of Schede's thoracoplasty for chronic empyema, which was greatly improved by it, but not cured, and then I performed an extensive visceral pleurectomy with an excellent recovery.

FIG. 1.—H, heart; L, liver; A and B, the two incisions.

Case.—Wm. C. A. Clements, age 40, farmer, entered the Post-Graduate Hospital July 3, 1895, suffering from a large chronic empyema of the left side, discharging pus profusely.

History: The family history was good, with the exception of the death of a sister from consumption. Personal history excellent; never had any illness before May, 1894, when he was taken down with pleurisy, which resulted in his present condition.

Present illness: On May 22, 1894, pleurisy of the

left side set in with considerable severity, effusion followed, which was aspirated June 23. At this time there was no fever, nor chills, and he was able to be out of bed. There was marked dyspnea and considerable discomfort, both of which were increasing. A watery fluid was removed (according to his statement) and great relief was experienced, which however was only temporary, for on the fourth day a new train of symptoms were ushered in. A distinct rigor followed by a high fever, with much thirst, etc., was then experienced, which was several times repeated. From this time till August 10 following he was very ill, and his friends had little hope of his recovery. An anesthetic was administered, the chest wall opened and a portion of a rib was resected to establish permanent drainage. This afforded marked improvement in his physical condition. His appetite returned, he gained in flesh and was able to walk around once more. The suppuration continued, the lung did not expand and the chest wall was quite a distance from it, between which a large cavity existed. The drainage became inefficient. Three subsequent operations (Sept. 9, Dec. 10, 1894,

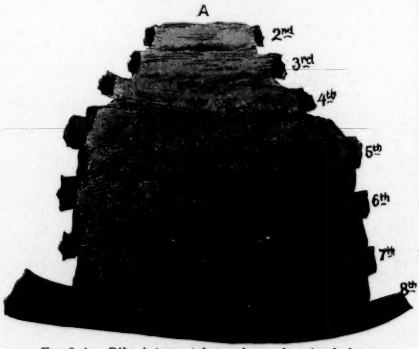

FIG. 2, A.— Ribs, intercostal muscles, and parietal pleura.

FIG. 2, B.—Cartilage of eighth rib.

and March 13, 1895) were performed by the local physicians, at which portions of the ribs were removed, but the suppuration with more or less pyrexia still persisted, and the chest wall had not sufficiently collapsed.

Condition on admission: He was a man of large, bony frame, slightly stooped and leaning to the left side. Height 5 ft. 11 in., weight 173 pounds, had lost about twenty pounds, but was not greatly emaciated. There was a hectic blush on his cheek, skin sallow and constantly perspiring. He had a loud, harsh cough, with a purulent expectoration, and the rushing of air in and out of chest wall could be heard before it was exposed. His temperature ranged from 99 F. to 101 F. Respirations 24; pulse 90; bowels regular; appetite fair; slight albumin in the urine, and he slept fairly well. A physical examination of the chest revealed a flattening of the left side, a fistulous opening between the sixth and seventh ribs in the mid-axillary line, thick creamy pus freely exudating through a rubber tube in the fistula. A probe could be passed into an enormous cavity to the first rib above, the diaphragm below and straight inward a distance of 10 cm. Moist râles and bronchial breathing could be heard over the apex and borders of the compressed lung. The right lung was apparently in a normal condition. A microscopic examination of sputum failed to find the bacilli of tuberculosis. The liver and spleen were not enlarged.

SCHEDE'S THORACOPLASTY.

Operation.—On July 6, 1895, Schede's operation was performed by me before the post-graduate class. A U-shaped incision.

Upon raising the flap, a stout, sharp retractor fastened under the border of the scapula did good service in exposing the ribs. The periosteum of each rib was cut through longitudinally. One after the other was then stripped with a periosteal elevator and cut through at each end with bone forceps, through the neck at the vetebral end of the fourth, fifth and sixth ribs, the rest not so far back; and near the costal cartileges at the other ends except the eighth, whose costal cartilage was removed *in toto*. A perpendicular incision was then made through the intercostal muscles, and parietal pleura into the empyemic cavity, from the diaphragm to the second rib and then each half of this musculo-fibrinous structure scissored away at the angle of its reflection with the visceral pleura in front and behind as closely as possible. It was then found necessary to excise 5 cm. of the second rib in order to clean out the apex of the cavity (Fig. 2). Throughout the whole operation the hemorrhage was insignificant. The thickened pleura was curetted and freely scissored, the whole cavity packed with iodoform gauze, the skin flap allowed to fall upon it, and two rows of cutuaneous sutures put in, one anteriorly and the other posteriorly, leaving the lower aspect unsutured for drainage and access. An abundance of antiseptic dressings applied, the patient put to bed and surrounded with hot-water bottles. He stood the operation well; the shock, though marked, was not profound; his pulse being 100, temperature 98 and respirations 26. The next day he was cheerful and in a good condition. The packing was removed on the third day and a smaller one substituted, which was repeated at the end of three more days, after which it was necessary to dress him every day. The skin wound healed by first intention, but pus formed in the cavity during the middle of the second week. Granulation tissue formed and gradually lessened the cavity. Once a week or so it was lightly curetted, with the hope of hastening the process.

During August he took pneumonia and nearly died. Prof. John A. Robson saw him then and gave an unfavorable prognosis. He, however, recovered slowly, and once more became master of the situation. He then gained rapidly in flesh and was soon sufficiently well to visit the parks. In spite of all our dressings, injections, curettings, etc., a long central sinus would not or could not close. Five months of this faithful treatment was surely enough, consequently I advised another operation.

Visceral pleurectomy.—On Dec. 12, 1895, I removed the thickened pleura over the lung and the whole pus secreting surface. The incision was made vertically the whole length of the sinus (Fig. 1, b). The pleura removed measured 17 cm., 5 cm. broad at the upper end, 7 cm. at the other, and from .5 cm. to

2 cm. thick, being thickest posteriorly. This was removed in two large and several small pieces. Fig. 3 represents what was removed as if in one piece.

In dissecting it off I tried to cut at the junction of lung and fibrous tissue. It was impossible to do this satisfactorily, and I had to cut through the peripheral layer of lung tissue. No sooner the upper portion of the lung was liberated than it so protruded through the external wound that I had to compress it with large gauze sponges before I could complete my pleurectomy, but at the termination of the operation the lung was collapsed, revealing an unsightly cavern in his side. The pleura removed was adherent

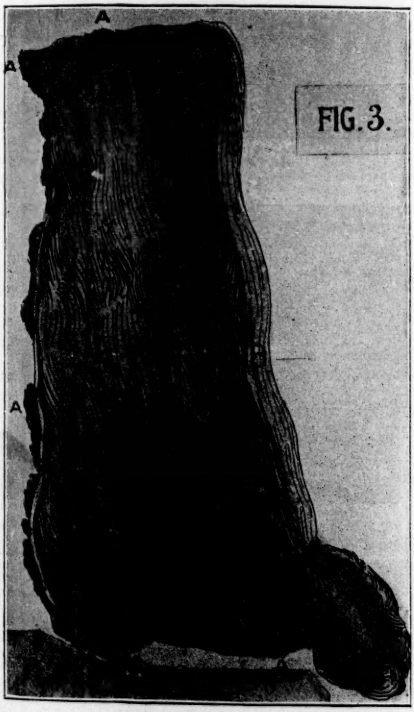

FIG. 3.—The visceral pleura. A, lung tissue; B, posterior thick border; C, suppurating external surface.

to the pericardium and diaphragm as well as to the lung. Upon removing it the heart was so beautifully exposed that I yielded to the temptation of playing with it for a short time. In seizing hold of it gradually with my hand it appeared to avoid being grasped and fought, not unlike a little pig would do with its nose, being evidently excited. When left alone it went on with its wonderful, systolic, diastolic and rotary movements as if it never had been touched. The venous and capillary hemorrhage was considerable. The cavity was packed with iodoform gauze and the skin sewed over it, leaving a couple of inches open at the most dependent part. There was slight hemoptysis for forty-eight hours. The amount of blood serum that exuded during the next four days was enormous, and beyond anything I had ever seen from any wound. The large dressings had to be changed daily, and even then the clothing around him was soaked. The granulation tissue that formed was very exuberant and vascular. It would bleed on the slightest touch. The cavity closed rapidly and February 19 he left for his home a healthier and happier man, though considerably deformed. His cough subsided, his pyrexia was gone, the skin assumed its normal color, the albumin in his urine cleared away, his appetite was excellent, and, in brief, his health was restored. The day before he left the city he was examined by Drs. J. H. Hollister, G. Fütterer, Byford, Bacon, Martin and others.

This leads up to the subject of

VISCERAL PLEURECTOMY.

The first visceral pleurectomy was performed in America with brilliant result. The honor is due to Dr. G. R. Fowler, performed on Oct. 7, 1893, and published in the New York *Medical Record*, Dec. 30, 1893. The second was done by Delorme, the third by Reclaus, the fourth by Gallet and the fifth by myself. There were four cases reported up till April 1, 1896. The ages of the patients were 35, 26, 26 and 12. Two of them were males and two females. Estlander's operation had been performed in two of them and a pleurotomy in two. A fistula existed in all the cases,

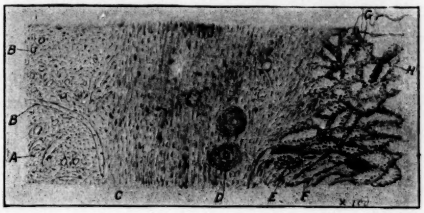

FIG. 4.—Old pleuritic with secondary interstitial pneumonitis. A, younger granulation tissue; C, older tissue infiltrated; D, endarteritis obliterans; E, obliterated air vesicle; F, obliterating air vesicles; G, bronchus.

and a large cavity was present in three. Two recovered and two died. A brief outline of all the cases, including my own, is herewith appended. The pathologic anatomy of these cases has not been very fully given. I shall therefore only crave your attention while reporting that of my own case.

Pathology.—The manner in which the visceral pleura thickens, layer by layer, externally and by alteration of lung tissue internally, is very interesting and instructive. A study of the pathologic changes in this case proves how impossible it was for nature to supply sufficient nutrition to form enough granulation tissue to close the cavity.

Figure 3 represents the thickened fibrous visceral pleura that was removed. A strip of lung tissue is shown along the thin border and attached to it.

Figure 4 regresents diagramatically a transverse section of the thickened pleura and adherent lung tissue, showing the chief pathologic changes that have occurred. The microscopic sections demonstrating these points are as follows:

The outer surface of the specimen consists of rough, shaggy granulation tissue. Attached to the inner

surface there are remnants of lung. Cut section shows fibrous tissue with some waxy, glistening appearance.

Low power: Superficial surface. There is no epithelial covering in any of the sections that have been made. Superficially there is an array of granulation tissue consisting of cells, fibers and a large proportion of thin blood vessels. As you go deeper the proportion of fibers to cells increases, the number of blood vessels decrease, and an infiltrate of homogeneous material becomes more prominent. Deeper still a large number of blood vessels are seen in various stages of obliterating endarteritis. In some of them the lumen is scarcely apparent, while in the vicinity there are masses of concentrically arranged fibrous tissue, exactly similar to the vessels except that there is no longer a lumen. These whorls of tissue I interpret as blood vessels that have been entirely obliterated. In this zone can be seen col-

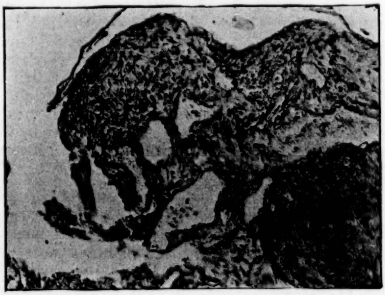

FIG. 5.—Section showing A, Fig. 4. Thin walled blood vessels, embryonal cells, some infiltration with homogeneous material.

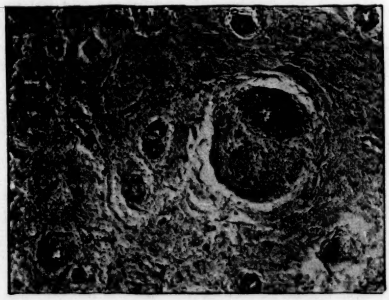

FIG. 6.—Section through D, Fig. 4. Some vessels obliterated, all with very thin walls; connective tissue of vicinity is old, laminated, wavy and abundantly infiltrated with homogeneous material.

FIG. 7.—Section through F, Fig. 4. Alveolus nearly obliterated, lined as were nearly all the alveoli by cubical epithelium. In this vicinity are masses of epithelium lying in irregular masses in the middle of the connective tissue.

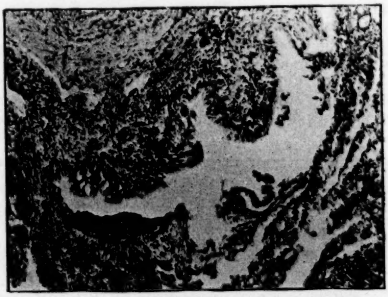

FIG. 8.—Section through G, Fig. 4. Cross section of bronchus lined by a single layer of ciliated columnar epithelium.

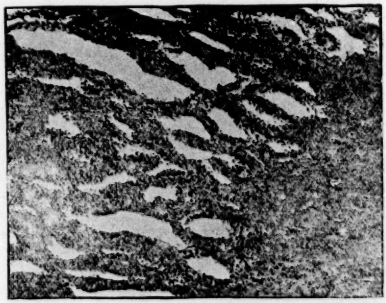

FIG. 9.—Low power section through lung substance showing greatly thickened alveolar walls.

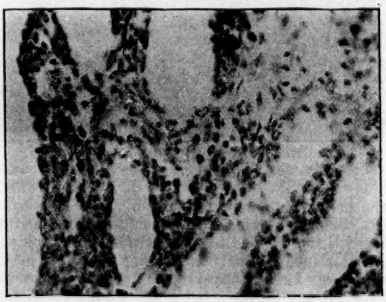

FIG. 10.—High power, same as Fig. 9, showing a typical chronic interstitial pneumonitis.

umns of tubical epithelium with no lumen; the remnants of obliterated air vesicles. As we go deeper into what is plainly apparent as lung structure we find gradations from the appearance just noted to be the air vesicle easily recognizable as such. These air vesical walls are thickened by an overgrowth of fibrous tissue that in places is even and in places is knob-like. There is considerable pigment within these alveolar walls. Occupying a portion of the air vesicle is an exudate. The blood vessels in these alveolar walls are thickened. A bronchiole of small size can be recognized.

High power: Superficial; typical granulation tissue, with a moderate infiltration of a hyaline material, is seen. As we go deeper matured fibrous tissue is found and the homogeneous infiltrate becomes more prominent. Some of the blood vessels show active proliferation of the endothelial cells; in others with very much thickened walls this proliferation is not so prominently seen. Here and there in these areas are irregular masses of degenerated epithelium, easily recognized, which are clearly representatives of former alveoli. Here also appear double columns of cubical epithelial cells, in which the epithelium is regularly arranged along its basement membrane; these are also remnants of obliterated vesicles. These vessel walls previously referred to are seen to be made up of concentrically arranged mature fibers. The thickening in the air vesical wall is due to increase in the connective tissue. The epithelium which covers it is everywhere cubical. The apparent exudate which filled many of the vesicles is now seen to be in part due to fibrin filaments, but in the greater part due to masses of epithelial cells lying loose in the vesicle. Many of these cells contain pigment. Cross section of the bronchus shows a typical bronchus of small size, lined by a single layer of ciliated columnar epithelium.

Microchemic means of differentiating the infiltrate were not employed. Sections stained for tubercular bacilli and other organisms were negative.

I am indebted to Dr. Evans for an examination and an accurate report of the pathologic specimen, and to Dr. Knapp for the micro-photographs.

REPORT OF CASES.

Case of G. R. Fowler, published in the New York *Medical Record* Dec. 30, 1893, p. 838. Female, aged 35 years; operation Oct. 7, 1893. History: May, 1886, fibroid phthisis was diagnosticated. March, 1887, pneumonia of the right lung. Jan. 31, 1891, empyema diagnosticated in right pleura. March, 1892, aspiration of about sixty ounces of purulent material. Four other aspirations were performed later. By June, 1891, permanent drainage was established. A rounded body could be seen through the fistula, which body moved with every act of respiration. Curetting and antiseptic irrigation having failed, the following operation was perfermed, for the wound had discharged almost continuously for the past five years. Operation: Elliptical vertical incision four inches long was made in the axillary line downward from the fourth rib, and in the flap was the orifice of the sinus. Three and one-half inches of the fifth and sixth ribs removed. A mass of cicatricial tissue was then exposed, through which the fistula passed. This was separated from the chest wall by blunt scissors. It was removed from the diaphragm as far as the median line, and was then by strong traction removed from the displaced pericardium. This part of the operation was assisted by working with the tips of the fingers, as paper cutters, and occasionally with blunt scissors. The mass was then lifted from the chest and last of all separated from the lung. Progress: Patient suffered considerably from shock, but soon rallied. Breathing was not much embarrassed, but the pulse was very frequent, because of the pressure made on the heart by the pledgets with which the wound was tamponed. After these were removed it became more regular and nearer normal. Temperature never rose above 102 degrees, and was at that point only a short time during the first twenty-four hours. Cavity was irrigated daily with 1-1000 bichlorid solution, mixed with 5-1000 tartaric acid solution. Upon each irrigation the cavity was thoroughly dried out and tamponed with zinc oxid gauze. Recovered. Pathology: At last the cavity had so far diminished that instead of holding 32 ounces of fluid it held less than an ounce. When the cavity held only a drachm the irrigation was omitted and the wound allowed to close. Patient apparently well; gaining rapidly in health and strength. Can now do household work well. Chest wall is sunken to about an inch or an inch and a half below its normal level at the site of the costal resection. Normal respiratory murmur is present posteriorly down to the seventh rib, and anteriorly down to fifth rib. Complete flatness in area where the vascular murmur is absent. Apex beat is now to the left of the sternum. Remarks: Hemorrhage during the operation had been slight from the parietes, but during the separation from the lung bleeding was quite profuse, but ceased when the removal was complete. Hemorrhage throughout was controlled by sponges and pressure; only one ligature was applied and this was in an adhesion on the pericardial side of the mass. The removal of this cicatricial mass left a cavity in the lower three-fifths of the right side of the chest. The mass removed consisted of extremely dense fibrous tissue, with here and there bits of cartilage and osteoid tissue. The fistulous track is lined with dense areas of epithelial cells, beneath which are rudimentary sebaceous glands. No lung tissue in any part of the specimen.

Case of Delorme. Published in *Presse Med.*, Paris, 1894, p. 97. Male, aged 26 years. Operation Jan. 26, 1894. (?) History: Pleurisy, probably tuberculous, of the left pleura. Pleurotomy was practiced in September, and a discharging fistula resulted. The cavity was 15 cm. in its greatest diameter. Operation: A cutaneous flap was dissected up and a "trap-door" of the costal wall was made and turned back. A pocket was exposed which extended from the diaphragm to the pleural cul-de-sac in the apex. A thick resistant membrane covered the pericardium and the visceral pleura. This was incised over the lung and was found to be 1 cm. thick. The lung was freed from its attachment to this membrane, the cavity cleansed, trap-door replaced, the ribs sutured together and the wound closed. There is no mention made that the visceral pleura was extirpated, though such was probably the case, for Delorme mentions the advisability of extirpation of false membrane in empyema. Patient alive five days after operation. Remarks: Delorme is referred to by Gallet (Soc. cit.) as the original operator for visceral pleurectomy, and though no explicit statement is made that the visceral pleural membrane was exsected in this case, the general trend of the article indicates that it was. Delorme, however, was not the first one to practice this visceral pleurectomy.

Case of Reclus. Published in *Presse Med.*, 1894, page 97. Male, aged 26 years. Operation Feb. 5, 1894. History: Puncture had been resorted to frequently. In November of preceding year pleurotomy had been performed and though benefited temporarily a fistula resulted. Operation: Rectangular skin flap, adherent by its postero-superior side over the sixth, seventh, eighth and ninth ribs. It is oblique from above downward and extends almost from the vertebral column to the sternum. These ribs were then resected for about two inches at the superior aspect of the wound and (the heavy dorsal muscles acting as a hinge) the anterior parts of these ribs with the corresponding muscles were reflected, after they had been cut loose anteriorly, superiorly and inferiorly from other parts of the thorax. The suppurating cavity exposed, extended from the costo-diaphragmatic sinus to the mediastinum and upward to the superior lobe. Its wall was a thick neo-membrane which was dissected with great difficulty from the pericardium and diaphragm and with less difficulty from the lung. During the removal the lung suddenly protruded from the thorax. Later, however, the lung contracted and when the operation was finished there was a larger cavity than before the operation, because of the removal of the membrane. Hence the trap-dor was excised and the wound covered by a skin flap only. Patient never recovered from shock; died the same evening. Remarks: The operation lasted one hour and five minutes. Hemorrhage was very slight. Examination showed the intercostal arteries were filiform and atrophied. Postmortem, it was found much more serious lesions than had been imagined had occurred in the lung. The right lung was contracted in its inferior lobe, tuberculous in the superior one; the left lung was softened at its summit, and showed confluent tubercles throughout the rest of its extent.

Case of Gallet. Published in *Le Clinique* June 6, 1895, page 354. Female, aged 12 years. Operation March 19, 1894. His-

tory: Right pleura involved. Estlander's operation had been performed without effect, although both the parietal and visceral pleura had been curetted. Lung was much contracted and did not expand after the operation. Schede's operation; the visceral pleura was curetted, and a spiculum of bone, two inches long, removed from the pleural cavity. The wound tamponed for two days and then irrigated with boracic acid. The fistulæ closed gradually. Recovered from the effects of the operation. General condition of the patient much improved and fistulæ dry. Remarks: We can not state that the patient is radically cured. 1. In spite of all treatment, however ingenious, some cases of empyema are incurable. 2. This pulmonary decortication, advocated by Delorme, and first performed by him, is in the presence of some lesions futile and unavailing. 3. Schede's operation is an excellent resort when Estlander's has not caused sufficient mobilization of the thoracic walls. P. S.—No doubt a very small portion of the pleura on the lining was removed with the spicule of bone two inches long, but we could justly exclude this case from the list of visceral pleurectomies.

Case of Alex. Hugh Ferguson. Published in JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Jan. 9, 1897. Male, aged 40. Operation Dec. 12, 1895. History: Had pleurisy May 22, 1894. Aspiration June 23, 1894. Pleurotomy Aug. 10, 1894. Resection of ribs Sept. 10 and Oct. 12, 1894. Estlander's operation March 13, 1895. Fistula thoracoplasty (Schede's) July 12, 1895. Operation: Vertical incision exposed a fistula seven inches long, two and three inches broad. The visceral pleura dissected off the lung, cutting through lung tissue. It was adherent to pericardium and diaphragm. Lung protruded and heart freely exposed. Progress: Shock not severe. Out of bed on eighth day. Discharge very profuse. Granulation tissue very vaseular. Rapidly closed, and he went home on Feb. 19, 1896, feeling very well. Cure complete. For the pathology see general description. Remarks: Hemorrhage considerable. It was venous in character. There was blood in the sputum for a couple of days after the operation. The cough ceased and he felt certain that he could assume work on the farm. The wearing of a shield was not advised.

P. S.—In a communication from Dr. Carl Beck, of New York, since the reading of this paper at Atlanta, Ga., he lays claim to having performed a pleurectomy prior to Fowler's case, regarding which he says: "I am not able to send you a report, as I have not published the case, but presented it to the German Medical Society; so that the only notice about it is contained in the secretary's minutes." I regret not being able to give due place to Dr. Beck's case, but I am not aware that it was one of visceral pleurectomy.

AUTO-INFECTION AS A FACTOR IN NERVOUS DISEASES.

Read before the Southwestern Iowa Medical Association, at Corning, Iowa, Aug. 20, 1896.

BY FREDERIC S. THOMAS, M.D.

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COUNCIL BLUFFS, IOWA.

Clinical observers have described the characteristic phenomena of various neuroses; also of organic nerve lesions whose etiology can only be ascribed to auto-infection or intoxication resulting from non-elimination of the products of metabolism, or the absorption of ptomains arising from the action of the ever-present bacteria on the accumulations of retained excreta in the alimentary canal.

Alienists have frequently called attention to the relation existing between a constipated or sluggish condition of the bowels and melancholia, dementia and depressed intellectual powers. It is the opinion of the writer, that the ptomains or toxins and toxalbumins arising from bad digestion and faulty elimination are greater factors in disease than has yet been stated by writers on this subject.

For the purpose of bringing this subject before this society in such a manner as to elicit an intelligent discussion, let us first inquire into some of the physiologic acts of the digestive tract. We learn that during digestion the albuminoids are acted upon by the gastric and pancreatic juices with the production of acid or alkalin albuminates, propeptones or hemi-albumins, and ultimately peptones.

Normal gastric juice will digest albuminoids irrespective of the presence of bacteria. According to Flint, meat far advanced in putrefaction may be digested in a normally secreting stomach without serious deleterious effects upon the being; the bacteria being destroyed or rendered inocuous by the acid gastric juice. Interference with the function of the hepatic cells gives rise to an auto-infection which specifically reacts upon the nervous system, through non-elimination.

The liver produces more or less urea which is excreted by the kidneys. The bile which is essentially a secretion, is also decidedly an excretion. In so far as the biliary salts are concerned, they are manufactured by the hepatic cells and do not preëxist in the blood. The bile is thus a secretion, but the constant and invariable presence in the bile of cholesterin classes it among the excretions. With the exception of the venous blood, crystalin lens, spleen and liver, cholesterin is found only in the nervous system, which is the probable seat of its production. The blood loses cholesterin in passing through the liver, yielding it up to the bile. Cholesterin is converted into stercorin in the intestines, being thus entirely eliminated normally. It may accumulate in the blood when the liver cells are deprived of their eliminating function, giving rise to cholesteremia, a condition characterized by grave nervous symptoms allied to those in uremia.

When we consider ptomains, leucomains and the various chemic derivatives from fermentations, we see how important cell selection becomes in normal functional activities. While it is important that we should consider the process of digestion, as it represents the disposition of the food taken into the body, we must also take interest in normal excretion, as this represents the end-products of metabolic activity which are of no further use to the system.

Four channels, viz., the kidneys, intestines, lungs and skin, are made use of in this important process. As a rule, the gaseous waste products are excreted through the lungs and skin, the soluble solid bodies through the kidneys, the insoluble through the intestines. The gaseous products are mainly carbonic acid and water. Occasionally other gases, as hydrogen and marsh gas are present, formed in the intestinal canal by fermentation.

The more important bodies excreted through the kidneys are urea, uric acid, creatin, creatinin (all nitrogenous), phosphates, sulphates and chlorids; while by the intestines is excreted the excess of food undigested, together with the indigestible matter and the insoluble products resulting from the combined action of the bile and intestinal secretions. These products together constitute the outcome under normal conditions. If we consider these waste products of the body chemically, we find nearly all the nitrogen excreted from the kidneys and intestines.

The carbon and hydrogen, on the other hand (and a certain amount of organic matter), are excreted mainly through the lungs and skin, a small amount being found in the feces and urine. The remaining elements to be accounted for, viz., sulphur, phosphorus,

chlorin, potassium, sodium, iron, lime and magnesium are found likewise in the urine and feces.

The most important nitrogenous bodies excreted are urea and uric acid, the former being the product of regressive metamorphosis by which proteid matter is changed by the action of the liver cells; the latter the product of a metabolism slightly different from that which leads to the formation of urea, undoubtedly one in which the spleen plays a part.

We have thus briefly recalled these physiologic processes only to refresh our memory along these lines, in order that we may better present pathologic conditions resulting therefrom. In such a consideration we must bear in mind that the function of an organ depends upon its structure. We are taught that "the structure of every cell and fiber of the body depends upon the quality and quantity of the material absorbed from the alimentary canal." An excess of food overwhelming the tissues and a deficient amount lessening the energy of every organ.

Toxic substances in the alimentary tract, whether introduced as such or developed from fermentation or putrefaction, deteriorates the structures and perverts its function.

Pasteur and others have shown that vast numbers of microbes capable of generating poisonous ptomains and toxins, varying in their properties, are capable of producing most powerful poisonous effects. These poisons are produced in greater or less quantities subject only to the normal poison-destroying power of the liver, and the eliminating function of the kidneys. It has been asserted that "the great number of functional nerve disorders which are included under the general term neurasthenia, are all of gastric origin." Dr. Kellogg, in an article read before the Mississippi Valley Medical Association, says: "We see that special investigators in the etiology of disease are pointing toward the stomach as the starting point of the train of morbid processes which give rise, in each particular case, to a special group of morbid manifestations."

Dana asserts "that organic changes in the central nervous system are doubtless due to absorption of toxic substances produced by microbic processes in the alimentary canal." Since Murchison's series of clinical lectures in 1877, on the functional diseases of the liver, the accumulations of uric acid in the system, as pointed out by him, has become a recognized etiologic factor in lithemic conditions.

To present cases of auto-infection that should follow the foregoing introductory chapter, we can but present those of every-day occurrence, leaving a very large part of our subject without discussion. I present a few cases treated by the author during the last year, which will in a measure be illustrative of the subject under discussion:

E. T., aged 15; a well-nourished girl, inclined to inactivity and fond of reading many hours daily. When at school was at the head of her class and was far advanced for one of her age. At times was gloomy and irritable, crying upon the least provocation. Soon after would have an attack of migraine. The case was one that had exhausted the list of coal tar derivatives and other headache remedies without relief. An examination of the urine was made; specific gravity 1030 and uric acid crystals found. Salicylate of sodium as recommended by Haig, was prescribed with outdoor exercise, either walking or cycling, and with but little reading permitted. Patient occasionally takes a teaspoonful of alkalithia. Bowels kept open by a seidlitz powder when needed. She has had no return of her trouble for four months. This case was of easy diagnosis, viz., an accumulation of uric acid in the system, hence migraine as a symptom.

B. W., a man 46 years old, a very successful business man; has been treated for dyspepsia for years; is irritable at times, thin in flesh, suffers with flatulency and constipation. Is a medicine toper. Extremely jealous of his wife and is fond of slipping into the house at an unexpected hour, accusing her of intimacy with other men, yet her conduct is most circumspect. Complains much of headache and insomnia. An analysis of his urine was made and uric acid crystals were found; the urine clear when first voided, but becomes cloudy upon cooling with brick dust sediment; specific gravity 1028. Prescribed alkalithia and the salicylates and a trip to the mountains; bowels kept open with lapactic pills; he has impoved much in health.

Mrs. B. P., married, aged 41, very fleshy and quite indolent in her habits; suffered with gastric and intestinal dyspepsia and cardiac palpitation and at times with a slight cystitis; had eczema once a year on portions of her body; complained occasionally of tenderness and stiffness in the metatarso-phalangeal joint of great toe of left foot; at times felt a soreness along the sciatic and pain in the intercostal nerves. Had been treated by one physician for dyspepsia, by another was told she had "chronic rheumatism." Her trouble was labeled "change of life" by her female friends. Had been given a course of "reduction of dislocated vertebræ" by an osteopathist. Her case was carefully studied and a chemic analysis of the urine made; uric acid crystals were found and a diagnosis of lithemia given. The patient was put upon a restricted diet composed largely of non-nitrogenous food, and exercise insisted upon; she was given large quantities of lithia water and an occasional teaspoonful of rochelle salts with bitartrate of potassa; a tonic of iron, quinin and strychnin was prescribed; at first a few doses of calomel were administered. She has improved much in health, her "rheumatic pains" have disappeared with her flatulence.

L. A., a married man, aged 36, a railroad employe. Began two years ago to suffer with attacks of indigestion and flatulence; at times had numbness of the extremities with some pain in back and loins; sexual function impaired; became depressed and would worry about trivial things; irritable at times and unsociable; performed his work with less interest and began telling his woes to comparative strangers. His sleep was disturbed and he suffered from headache; was constipated and flow of urine irregular, either scant and high colored or profuse and pale; lost weight and muscular strength; imagined he had heart disease on account of pain in the chest; was told he had diabetes; was also told he was becoming consumptive; was afraid he was losing his mind, and was not sure but he had locomotor ataxia; was constantly studying his own symptoms by the aid of a domestic work on practice. An analysis of urine was made and an excessive amount of urates found; specific gravity 1026. A diagnosis of neurasthenia given. He was required to visit my office but once a week and each time I made a thorough examination, both for the mental effect on the patient and to note any changes in his condition. His bowels were moved by a mercurial and salines, with plenty of water to keep them open ordered; tonics were given for a while; a shower bath with towel rubbing every morning required; a carefully regulated diet adopted and a cheerful mind enjoined. Faulty digestion, functional inactivity of the liver and the eliminating function of the kidneys were but improperly performed. As a result toxic substances were absorbed and the train of symptoms above enumerated ensued.

Considering the human body but an aggregation of cells, and cell groups normally functionating for the maintenance of the health of the individual, we realize the necessity of a normal equilibrium of nutritive factors, that they may resist the action of deleterious agencies. Men are not alike, nor are they at all times equally vulnerable to the action of bacteria. Heredity comes in for its share of theorizing, which in the light of modern research is defined as "a special vulnerability of certain cells or group of cells to morbific action."

Metschnikoff's theory of phagocytosis, and the theory that "certain albuminous constituents of the body possess a bactericidal power or a neutralizing effect upon the bacteria and their ptomains," all point to the importance of normal functional activities within the body. From a study of the various systems of cells of which the body is composed, we

can with assurance point to those of the nervous system as the most vulnerable to the attack of morbific agents.

With the multitudinous array of symptoms seen in many forms of nervous disorders, how natural it seems for us to turn to the avenues of elimination in search for a source of infection. Then, surely, auto-infection is a factor in nervous diseases.

THE USE OF FORMALIN IN INFECTED WOUNDS.

BY A. L. CORY, M.D.
CHICAGO, ILL.

My attention was called some time since to the use of a mixture of formalin and gelatin in infected wounds. A German firm placed the mixture on the market under the name of "glutol." Formalin is mixed with gelatin, which forms a solid mass; this is grated, forming a fine gray powder, in which state it is sold, to be dusted on the wound as we have been doing heretofore with iodoform or boric acid. An American firm have recently put the same thing on the market under its proper name, "formal-gelatin." It was claimed for it that when pus was present the gelatin would gradually dissolve in the secretions and liberate the formalin, which is a strong disinfectant, and thus keep up a continual action while any of the powder remained. On trial I failed to realize the good results except in superficial injuries, for instance in two cases of scalp wounds. At the second dressing, 48 hours after the injury, the skin around several of the stitches looked quite inflamed and seemed about to suppurate, but on the application of the powder and fresh gauze at the next dressing, four days after, the wounds were found entirely healed. In cases where the infection was deep and pus already formed I could see no benefit from the powder. At this time I had under my care one of the nurses of Englewood Hospital who had been operated upon for appendicitis. The external wound had by some means become infected and I had opened it widely down to the peritoneum. In spite of all the measures I could apply, including the glutol, the wound surface continued to suppurate, and a pocket formed under the skin, beyond the wound but communicating with it, from which pocket I could press out at each daily dressing about two drams of pus. It then occurred to me to try the formalin in solution. Knowing it to be very strong, I without any special reason chose to make it of the strength of 1 to 200, formalin 3i, water 3xxv. After the wound had been washed with sterile water until clean, I packed both it and the pus pocket with plain sterile gauze dipped in the above solution, and what was my surprise on the next morning to find no pus whatever. I again dressed it with the formalin, and at the end of another twenty-four hours removed it and dressed with iodoform, and the wound healed promptly without further formation of pus. At the same time I had under care a woman who had an Alexander operation for shortening the round ligaments, and in whom one of the wounds had become infected so that I had opened it widely for drainage. Two dressings of the formalin, 1 to 200, stopped pus formation, and the wound healed under iodoform without further suppuration. Since that time I have dressed all infected wounds, and we get many of them in railway surgery because of dirt ground into the wound at the time of the injury, with plain gauze thoroughly wet with a solution of formalin 1 to 200, and have not had pus occur where the formalin could get to all parts of the wound.

I have had some wounds irrigated with the same solution, but do not get as good effects as where applied on gauze packed into the wound. In an amputation of the arm for railway injury suppuration occurred in the track of the drainage tube; here it was not possible to pack the entire tract with gauze, and irrigation seemed to reduce but not entirely stop pus formation. It would seem from my experience that the formalin must be held in place so that it may act on every part of the wound for several hours. In an acute case of gonorrhea in a woman, as proven by finding the gonococcus in great abundance, I had the vagina thoroughly douched, then packed it through a speculum with gauze wet with formalin 1 to 400. This was renewed for four days in succession, and the gonorrhea was cured.

My experience with the formalin has been so satisfactory that I desire others to try it and see if they can get the same good results.

I believe that with gauze dipped in the solution and the powder applied we have an ideal non-toxic dressing. With gauze wet with the solution packed in "pus pockets," and in gonorrhea in the female applied on gauze, we can get better results than with any other dressing used at present by the profession. I would not expect as good results in gonorrhea in the male, for there the formalin could not be retained long enough in contact with the diseased surfaces. In making my solutions I have used the formalin 1, as it is really a 40 per cent. solution of the gas called formaldehyde. I have continued the formalin as a packing material in my pus cases only long enough to stop the pus secretion. I do not know that it would be injurious, but knowing that it is being used as a fixative of fresh specimens for microscopic specimens, I have feared that its continued use would harden the granulations and delay the cure, so as soon as the suppuration has stopped I have used iodoform in powder and plain gauze as a packing to stimulate the growth of granulations.

4101 State Street.

TOBACCO AMBLYOPIA.

Read at the meeting of the Third District Branch of the New York State Medical Association at Auburn, N. Y.

BY F. W. HIGGINS, M.D.
CORTLAND, N. Y.

I shall make no attempt to present anything novel on the subject of tobacco amblyopia. It is a subject that has been much discussed during the thirty-three years since Jonathan Hutchinson first clearly connected failing vision with the inordinate use of tobacco. Still the pathology of the disease was not made clear until a dozen years ago and there is still much difference of opinion among writers upon the question of its real cause. But it is not even an attempt to clear up any one of these disputed points that I have had in mind in selecting this topic, but because I think that the ascertained facts in the case have been too much neglected by us as general practitioners. Until the ability to detect the condition is in the possession of the profession generally, it seems to me that many cases are bound to go unrecognized. Even if it is first diagnosed by the eye specialist, it can be best treated and its course followed by the family physician.

The diagnosis in this, as in any of the bedside cases we are called upon to treat, is of the first importance. Here, fortunately, it is not difficult if we keep its distinctive features in mind. If a person whom we know to use tobacco, therefore generally a man, who had used it moreover for several years, should complain of failing vision, for which he could find no help in spectacles, and affecting both eyes, we should have good grounds to suspect tobacco amblyopia. If then a rough test of the color fields of vision should show central scotomata for red and green, there could hardly be one chance in a hundred that we were mistaken in deciding that we had a case of this affection on hand. Of course the ophthalmoscope should be used, if for no other reason, to exclude other lesions. But I am one of those that believe that the ophthalmoscope should be used by every physician that is capable of using any instrument of precision, since it so often affords a clue to the general disease for which our patient is to be treated. Tabes dorsalis, Bright's disease and diabetes are only a few of the general diseases in which we may expect to derive some assistance from the ophthalmoscope.

The almost pathognomonic symptom is the central scotoma for red and green. A very simple and ready way to test this, when it is suspected, is to have the patient stand directly in front of you at a short distance, two feet for instance. One of his eyes is to be closed and with the other he is to look directly at your nose. A little piece of red paper is then to be fastened to the end of a penholder, or anything convenient, and from arm's length at the side to be brought slowly toward your nose. When the patient can first recognize it as red, you find that the object is at an angle of from 30 to 45 degrees from his eye. As the test object continues to approach your nose, suddenly there is a failure to recognize the color again. The object can be seen but looks simply dark, with no distinctive color. This small spot in which a person is color blind includes the fixation point and extends a short distance beyond it especially toward his temporal side. The same test with a bit of green paper will reveal the same scotoma, while other colors and white will probably be recognized. If the patient stand near a blackboard this field can be mapped out, and still more precisely by the perimeter, of which every part is equi-distant from the eye.

Such a typical case would be a man about 50 years old, who had smoked for many years. Chewing, working in a tobacco factory, or rubbing the gums with snuff may bring on the condition, but as a matter of fact, rarely do. The associated use of alcohol seems to act as a predisposing cause. Indeed, it seems to be proven that the chronic consumption of alcoholic beverages alone may cause an amblyopia indistinguishable from the one we are considering. Much of the literature on the subject has been of the nature of a discussion between those who believe that tobacco is the principal etiologic factor in the ordinary toxic amblyopia and those who would ascribe most or all cases to alcohol. The determination of the question is rendered the more difficult by the fact that most of those affected have used both narcotics to a greater or less extent. The English, following the investigations of Hutchinson, Nettleship and other English investigators, would claim that alcohol amblyopia seldom or never occurs. The French, in their intense loyalty to the published investigations of their fellow countrymen, almost unanimously declare that alcohol is the sole cause of the retro-bulbar neuritis; that it causes sclerosis of the optic nerve as it does sclerosis of the liver. The Germans seem willing to allow both causes, as a result of their studies. The Americans have done too little original study to have a decided opinion on the subject. I think, however, that they admit both.

Often the observation is made that the patient can see better in the evening, or when the light is dim, than in broad daylight. A case is given of a coachman who could see the numbers on a house in the evening, but could not in the daytime. The pupil, however, is generally small and spasm of the ciliary has been noticed, which might require a strong light for the best vision.

If one makes an ophthalmoscopic examination he will discover, if sufficient care is used, that there is an atrophic appearance of the temporal quadrant of the nerve head. This bluish white color is hard to describe and drawings fail to give the delicate color change.

Within the last few years there seems to be a pretty general agreement as to the pathology of the disease. This to me forms a very interesting chapter. So long as it is found clinically that only the region of the macula and its immediate neighborhood are affected it would be expected that only a part of the fibers of the optic nerve would be found diseased. As a fact, this proved to be the case when sufficiently careful microscopic study of the nerve was made. A photograph of the section of a nerve near its peripheral extremity shows that the bundle of fibers lying at the outer and lower side and destined to supply the territory about the yellow spot is sclerosed. This change consists of a chronic inflammation with increase of the fibrous tissue lying between the nerve fibers, which by its subsequent contraction produces their atrophy.

A little farther back this bundle of fibers runs in the central part of the optic nerve instead of peripherally as before. The inflammation is often found to be most extensive near the optic foramen, where the situation of the bundle is entirely central. This fact disposes of the theory that the affection is primarily of the optic sheath and affects the elements of the nerve by pressure or extension. It is a primary nerve lesion.

Exceptional cases have occurred in which the central scotoma has enlarged until it has occupied almost the whole of the color field. In such a case we would have a condition of acquired color-blindness. It is easy to see how in such circumstances a railroad engineer or a pilot, who had successfully passed an examination for color blindness might become unsafe.

The kind of tobacco used may be a factor in the causation of the disease. It is found most among the poorer classes, because they use the cheaper, ranker tobaccos. It is found that the Virginia tobaccos contain two or three times as much nicotin as the Cuban or Maryland product. While it is probable that the other complex alkaloids and chemicals produced in the combustion of the weed are in part responsible for the effect upon the nervous system, still the percentage of nicotin in a sample in a general way measures its strength. The frequency of the affection seems to be greatest in England. In some clinics it reaches as high as 1 per cent. of all cases treated. Possibly this is due to the fact that more general attention has been called to the disease there, or it may be due to

the ranker sort of tobacco in common use. The very high import duty on tobacco and cigars in England does lead to the usage of a cheaper, stronger grade.

A very interesting case is given by Fuchs in which the same amblyopic condition was brought on by the long continued smoking of stramonium for asthma.

The treatment of tobacco amblyopia is very satisfactory because it is almost always successful. That is to say, it is successful where the conditions are carried out. The *sine qua non* is that the patient shall quit the use of tobacco absolutely. If one has a patient who would rather smoke than see, the prognosis is bad. Something might be done by smoking in the Turkish style, or greatly lessening the use of it and giving large doses of strychnin; but in the majority of cases no improvement is noticed until the last trace of its use is given up. Small doses of nux vomica are recommended. Bromid of potassium may be indicated to quiet the nerves while undergoing the tantrums of breaking off the old habit. We are told, too, to give cathartics to take the place of the accustomed effect of the tobacco.

The progress of the case toward recovery may be measured by examining the size of the scotoma from time to time. It will be noticed, too, that as the conductivity of the tract from the retina to the brain centers is increased that the disability to distinguish the two colors, instead of being absolute, is only partial. At times in a favorable light, the colors will be correctly named in a hesitating manner. Entire recovery may be expected if the abstinence is continued. An ophthalmic examination may still show a paleness of that portion of the optic nerve, but vision will increase from $\frac{6}{60}$ to normal.

NOTE.—Several charts to illustrate the condition were presented.

DISINFECTION OF THE MOUTH A POTENT FACTOR IN THE TREATMENT OF LA GRIPPE.

Read in the Section on Dental and Oral Surgery, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY G. V. I. BROWN, D.D.S., M.D., C.M.
DULUTH, MINN.

In my capacity as a dentist, through dispensary and hospital practice incident to the study of general medicine, and by consultation with physicians in regular practice, who were particularly alive to the importance of the oral cavity in its relation to other disturbances, several conclusions have been borne upon my mind, which it is my desire to make the basis of this discussion.

1. That the disinfection of the oral cavity ought to be, and would be, if the necessity of it were sufficiently understood, as much a part of preliminary treatment of many diseases as the administration of a cathartic.

2. What is wanted to bring the dentist and the medical practitioner more frequently into consultation, as they ought to be, is not so much reports of remarkable cases, which, while they call attention to the possibilities of trouble, do not give an adequate idea of the frequency of mouth excitants of disease; not so much a theoretical digest of pathologic and bacteriologic processes; for given the state of things as they exist, the physician can supply all this for himself; but a plain statement of the facts of individual observation and experience as applied in relation to particular diseases. Following this line, I desire to call attention to influenza, or la grippe as commonly called, in its relation to pathologic conditions of the mouth.

For fifty years this affliction has been recognized in periodical outbreaks, yet much of the real nature is still shrouded in mystery. We find, with some variation among authors, its description briefly to be as follows:

Definition: An acute, specific, infectious disease, characterized by great prostration and often catarrh of the mucous membranes, particularly the respiratory and gastro-intestinal tracts, with marked liability to complications.

Etiology: Comparatively unknown, notwithstanding exhaustive literature on the subject; believed to be due to the infection of the body by a specific organism, though bacterial examinations have usually shown pus organisms and diplococcus pneumoniæ to be present. Symptoms are those of a marked infectious, or toxic, general constitutional disturbance of the body, with local lesions and symptoms; fever, languor, pain in the back, head, eye balls, bronchial disturbances, or catarrhal affections of the digestive tract, with perhaps nausea, diarrhea, etc., usually great depression of nerve force and spirits and a tendency to painful neuralgias of the trigeminus.

Complications and sequelæ are the really formidable part and due for the most part to secondary infection, manifesting themselves in a variety of ways.

Diagnosis: Not usually supposed to be difficult, unless in a form resembling typhoid in its early stages, but differentiated later by pain in the muscles and catarrhal symptoms.

Prognosis: Favorable in healthy patients, dangerous in heart troubles and pulmonary diseases, or chronic nervous patients.

Treatment: Symptomatic, almost entirely phenacetin, antipyrin, quinin, strychnin and stimulants with morphia, when required, and good general care are the remedies most usually employed, with the usual variation of special advocates of other drugs. Thus we see from the clinical picture before us a disease, the characteristics of which are exactly those one ought to expect from quite common conditions of the teeth and gums, which by reason of the constant discharge of pus, must, and undoubtedly do, aggravate the symptoms.

In abscessed teeth, caries and necrosis of the jaws, as well as in pyorrhea alveolaris, we have the danger of direct infection, of reabsorption of waste products of toxic poisoning, and the constant passage of the pus germs through the alimentary canal along the mucous membrane surfaces, ready to ignite inflammatory or catarrhal processes wherever the lowered vitality of the part offers the least resistance. I do not think it an over-estimate to say that 90 per cent., if indeed not all patients, would have some pathologic oral condition, and a research of medical literature gives us almost nothing in regard to direct medication applied for the purpose of disinfecting the entrance portal of the infection.

We note the two most common forms to be bronchitis, with its serious complication, pneumonia, and catarrhal disturbances of the digestive tract.

Miller, in his "Microörganisms of the human mouth," referring to the experiments of Frænkel and Weichselbaum, who hold that the coccus of sputum septicemia is to be regarded as the most

frequent, if not the sole excitant of the lobar pneumonia, says: "If their view be correct, we may answer that in at least many cases the infection came from the mouth. The oral cavity serves as a gathering point for this microbe, which from time to time is carried into the lungs with the air, until at last, at some weak point, or the result of some slight inflammatory action in the lungs, through which the power of resistance is impaired, it obtains a foothold in the lungs themselves. For this reason, therefore, among many others, the neglected oral cavity offers a dangerous source of infection, which has by no means received the attention it deserves."

Mouth bacteria as excitants of nasal and pharyngeal troubles are too well understood to need more than passing notice and the same will, I think, apply to diseased conditions of the stomach, both catarrhal and digestive, which, over and over again, have been found to be the direct result of mouth conditions.

The other symptons and sequelæ of this disease are simply such as might be expected from any toxemic poisoning affecting the system from infection, varying according to the virulence and power of resistance of the individual case.

It is by no means intended to convey the idea that la grippe is purely and simply a result of oral infection, though, as we not unreasonably suppose, the secretions of the mouth are often a culture media for its specific organism; but there can be no doubt that many complaints arising solely from mouth disturbances are incorrectly diagnosed as la grippe, and that in such cases, as well as in the disease itself, much comfort, relief and benefit might be given to the patient during its progress, beside which many of the most serious complications might also be averted by the prompt, thorough and continued disinfection of the mouth, meaning thereby not only sterilization of the buccal secretions, but treatment or removal of any diseased condition that may exist.

It has happened repeatedly in my practice that patients have come complaining of all the marked symptoms of la grippe, perhaps while under the care of a physician for its treatment, with a foul odor from the breath, the mucous membrane of the tongue coated, more or less pharyngitis, and upon examination I have found a copious discharge of pus from the necks of the teeth, discharges from the fistulæ of apical abcesses or necrosis of the jaws, and by a removal as far as possible of the exciting cause, thorough cleansing of the teeth and medication in the form of sterilizing agents, aided by an antiseptic prescription to use as a mouth wash every hour the first day or two, and three times daily thereafter, have been given marked relief and shown improvement within twenty-four hours, with apparently complete recovery in a very short time.

One such had suffered from recurrent attacks, accompanied by chronic sore throat, a severe bronchitis, hacking cough and asthmatic attacks of considerable severity. All symptoms were marked, particularly the nervous depression and hoplessness.

Examination showed a chronic catarrhal state of nasal and pharyngeal cavities, with nasal polypus of considerable size. The oral cavity showed all the teeth more or less elongated, some having been lost, and on the right side, the outer wall of the superior maxillary was bulged out sufficiently to give a distorted appearance to the face. As a preliminary step the care of the mouth was begun, it being understood that the polypus was to be removed and the treatment for the nose, throat and bronchials was to be taken up later.

Incision was made through the thin, bony covering of what appeared to be a sinus filled with thin light-colored fluid (though not connected with the antrum), but in washing out the cavity with hydrogen dioxid, bubbles were seen to ooze out around the neck of the right superior first bicuspid, and proved in fact that, though the pulp of the tooth was alive, a pyorrhea pocket communicated with, and had actually caused this apparently serious condition. Thorough local disinfection, drainage and cleansing of the necks of the teeth, care of the pyorrhea, by correcting malocclusion, an active exciting cause in this instance, and general disinfection of the mouth, repeated in the office daily for a number of days, augmented by a prescription for use at home, made such a general improvement in the patient that there was a general abatement of all the unpleasant symptoms, the despondency disappeared as she was able to go about and do her own housework, and the other treatment was considered unnecessary.

Another, a young man, having all the symptoms of disordered digestion, foul mouth, coated tongue, and troublesome but not severe pharyngitis, loss of appetite, intestinal disturbances, pains in his head and all over body very marked, pulse irregular, one or two degrees of fever, for which, curiously enough, his physician had been content with administering phenacetin, a depressant, to still further increase the already weakened and depressed condition, a treatment, according to good authority, that has probably killed, during the epidemic of 1889 and 1890, more patients than ever the disease alone would have done, was given the same treatment as in the preceding case, viz.: Thorough disinfection of the mouth, in which not only pyorrhea of long standing was encountered, but some abscessed teeth and necrosis, for which it was necessary to remove a sequestrum of bone. Immediate relief was given. Three days without the administration of drugs, were sufficient to put him quite on his feet again.

These two cases are typical of the principal forms of this disease, and illustrate as fully as could be done by a rehearsal of many similar cases that have come within my notice.

In using the term, disinfection, I have included the operative means necessary to accomplish the desired end, as well as the use of antiseptics. The former usually requires the assistance of a dentist, but the latter is quite within the reach of every practitioner of medicine, who, if as he looks at the tongue in the truly orthodox manner of physical diagnosis, will glance at its surroundings, and give along with the prescription for internal use, one for a simple mouth wash with good germicidal properties, he will certainly find the usual remedies unusually efficacious.

Dr. Kirk, in the *Cosmos* of November, 1895, speaks quite strongly upon this subject, and recommends the use of phenolsodique, adding the somewhat unusual procedure of holding the tongue and scrubbing its surface with a brush, to cleanse off the closely adherent furred coating. This I have not tried, though for a thorough cleansing, it speaks for itself. I begin, as is my custom with every case presenting in which the suppuration processes are apparent, by making the

patient rinse the mouth with a solution of mercuric bichlorid 1 to 1,000, with an equal amount of hydrogen dioxid, or in place of this, a strong carbolized solution, and continue the process two or three minutes by the watch. This serves the purpose of safety both to the patient and the operator. The local applications are governed by the nature of the case, and upon dismissing the patient, give the following prescription, which I have used a long time, and once before given before this Section:

R. Listerin.		
Glycerin	ää ʒiij.	96
Acidi carbolici	℥iij.	12

Misce. Sig. Dilute one teaspoonful in one-third glass of water. Use as mouth wash.

This seems to be quite effective, and is satisfactory because, by reason of its simplicity, patients being familiar with the drugs, are able to use judgment in varying the strength, as necessity may require.

There are mouth washes galore, and I have no especial desire to go into the matter of their discussion. They must be strong enough to at least inhibit, if not destroy, the pathogenic organism, must be used constantly, and held in the mouth for several minutes consecutively, to be at all certain of effecting the desired purpose. As for other desirable qualities, these may undoubtedly be left to individual preference.

What is true of influenza is undoubtedly also true of many diseases, and if alone the practice of disinfecting the mouths of their patients could be freely established among those whose duties call them to the bedside, far-reaching benefit must undoubtedly result.

DISEASE OF THE ORAL CAVITY A POTENT FACTOR OF GENERAL DISEASE.

Read in the Section on Dental and Oral Surgery, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY SHEPPARD W. FOSTER, M.D.

ATLANTA, GA.

The oral cavity in its broad range of function, in its necessity to the life and advancement of the human family, fills one of the most important offices of any organ of the body.

Serving, as it does, among other important functions, in the articulation of human speech, in vocalization, prehension, mastication, insalivation, deglutition, etc., it has constant employment from the induction of life to the last breath of old age. It plays equally an important part in both the sorrows and pleasures of life. And since its functions are so imperative, we can readily appreciate the fact that any pathologic condition existing here might with ease become manifest upon other organs.

We will call attention to some of the deleterious effects of first dentition. We know that this period covers the most critical span of human life, but it has been stated by eminent authority that the vast mortality of infantile life depends more on the conditions of the oral cavity than from all other causes combined.

When the development of the root of a tooth progresses more rapidly than the overlying tissues are absorbed, we have local inflammation. The gums become red, swollen, and highly inflamed and are very tender to touch. The secretions are much increased and the reflex pressure on the nervous and vascular supply augments the trouble, until we have the entire system involved. The child has grown wakeful, restless and fretful; its cheeks are flushed; it refuses nourishment; the alimentary canal becomes more active, diarrhea being manifest, and if relief is not given, relaxation of the vital forces follows and we have nausea, vomiting, convulsions, paralysis and not infrequently death. Statistics show that a greater number of deaths occur from cholera infantum, entero-colitis, convulsions, infantile paralysis and laryngismus stridulus during the period of first dentition than at any other time of life.

Considering the anatomy of one of the largest and most complicated nerves of the human organism, that which supplies the teeth, the trigemini: A compound nerve varied in its functions, a nerve of special sense, common sensation and motion; the great sensitive nerve of the head and face; the motor nerve of mastication; its lingual branch the nerve of the special sense of taste, sending important branches to the ear and eye, anastomosing with many other nerves. It is not strange that we have remote lesions having their origin from this nerve.

A large percentage of neuralgia can be readily traced to some dental disease. The most numerous cases of reflex irritation are associated with these disorders. One of the most frequent is the continued attacks of auritis during the eruption of the sixth year molars. In almost all cases of reflex irritation, as the result of erupting teeth, the free use of the lancet gives immediate relief.

I have with me an unerupted, impacted central incisor tooth, which Dr. R. B. Chapman, of Troy, Ala., extracted from the mouth of a lady aged 25 years. She had suffered with neuralgia for several years. It had taxed her patience and the skill of the best physicians of her city and she had spent several seasons at different resorts, endeavoring to obtain relief, but to no avail. Finally, she came under the care of Dr. Chapman, who noticing the absence of the tooth, made a careful examination and located it with cutting edges pointing upward and almost protruding into the nasal cavity. He removed the tooth by making an incision at the union of lip and gum and with burrs and chisels removed the overlying osseous tissue and lifted it out of its bed. With the healing of the wound the neuralgia entirely disappeared and the general health was greatly improved.

I have also in my possession a left superior second molar which has interlocked with an impacted wisdom tooth, with coronal surface deflected backward toward the tuberosity of jaw. The patient had dull, heavy, gnawing pain for some years about the region of molar bone and auris, finally terminating in slight paralysis of the face from which she could not be relieved. The second molar having developed quite a large cavity which became painful, then she applied to have the tooth extracted. The operator was much surprised at bringing with it the unerupted wisdom tooth. Within a few weeks after this operation the paralyzed condition disappeared. We believe many conditions of like character are the result of nervous reflex irritation produced by dental disorders.

We frequently have recorded cases of amaurosis as the result of inflamed or dead pulps, or chronic catarrhal trouble induced by a diseased tooth, first producing an inflammatory condition of the antrum and spreading from thence through the nares and various sinuses.

In examining the mouths of many patients suffering with dyspepsia it has proven the exception when

the masticating powers have not been destroyed from one-third to five-sixths of their capacity. We know that bolting of food day after day will produce dyspepsia, gastritis, etc., therefore we must admit that if the inability to properly masticate is not the direct cause of this dreadful disease, it certainly accompanies it. Lower your vitality and you invite disease. The oral cavity is the commencement of our digestive tract. It is the antechamber to man's vegetative life and in this respect it is introductory to the stomach. Therefore it is reasonable to suppose that any lack of hygiene, or any pathologic condition that causes a deficiency of quantity or quality of the fluids which the food first meets when entering the mouth, is a hindrance to nutrition and undoubtedly makes its impression on the stomach.

Often when a patient presents herself for treatment she is anemic, debilitated, despondent and melancholy. The physician examines her and asks various questions, but can not locate the trouble in any special organ, so he says "nervous debility," or "breaking down of the vital forces," and the usual prescription of tonics, change of residence, etc., is advised. A careful examination of the oral cavity would reveal decayed and broken down teeth and suppurating sinuses, contaminating the air of respiration, vitiating the oral fluids, poisoning nutrition and consequently lowering the vital forces and breaking down the general health. This is not imaginary, but the real condition of the mouths of many of our patients.

It is rare that we find a consumptive without a typical case of pyorrhea, or at least pus exuding from around the necks of the teeth, and I have thought that inhaling the effluvia from these suppurating sinuses of the mouth might produce this fatal disease. This leads me to ask, What should be the relations of the physician and dentist? Should the dentist know more of medicine or the physician know more of dentistry? As to these propositions I think no medical college should be without a chair on the principles and practice of dentistry and our dental schools should teach more of general medicine and surgery.

62 Inman Bldg.

THE TECHNIC AND PATHOLOGY OF THE PERIDENTAL MEMBRANE.

Read in the Section on Dental and Oral Surgery, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY VIDA A. LATHAM, M.D., D.D.S., F.R.M.S.

CHICAGO, ILL.

Dental histology and pathology are yet in the embryonal stage, less advanced, perhaps, than any other kindred subject. With the exception of a few, we can not claim special micro-workers. Little encouragement is given to prosecute the subject. The technic is difficult and unsatisfactory at the best, and our schools are content to teach the subject in such a brief elementary way that a student graduates in dental surgery with but a slight knowledge of the barest facts concerning the structures that compose the teeth. It is needless to urge that this is wrong, such a fact is self-evident. An exact knowledge of structure always aids in understanding the function of a part, and is absolutely essential to a clear idea of its diseases and to rational treatment. If we do not know the arrangement of enamel, we are in danger of splitting the tooth in chiseling. We can not tell what agents are absorbed if we do not know the composition of the dentinal tubules, or the action of bacteria and their septic products on the surrounding structures of the root. Precise information on the histology and chemistry of the teeth would solve many of the curious problems we meet in the practice of our profession.

So far as I can find by consulting text-books on micro-technic, little or nothing is said of technic in dentistry. A few ideas are scattered here and there through our journals. Works on dentistry dismiss in few lines the peridental membrane and its structure, position and the modes of obtaining sections for study. When looking over some mounts of teeth I was surprised at the different appearances presented, some showing extensive pathologic features and some interesting conditions. To obtain normal peridental membrane is not easy. Some authorities state that it is found on all extracted teeth, while others say it is not present unless some pathologic process exists. Certainly in the majority of healthy teeth after extraction the roots are always free from any tissue, or what might be considered periosteal tissue. In carious teeth, especially those which have had some periosteal inflammation or irritation, we can easily find thickened membrane. A recent study of several thousands of sections of carefully selected teeth has convinced me that in the case of normal teeth, after extraction, it is difficult, if not impossible, to demonstrate the presence of peridental membrane; whereas in carious teeth, particularly those with periosteal inflammation, a thick layer of peridental membrane is always present. Therefore, I am in favor of considering sections from such teeth pathologic material.

In studying the development and relations of the peridental membrane, sections were made of teeth of animals, fetal and matured, including serial sections of one and of both jaws, to show the relations of teeth and membrane *in situ*. So far as I have pursued this work it has been anything but satisfactory, for the following reasons:

1. It is difficult to secure good specimens of membrane.

2. When obtained, it is hard to preserve the membrane in a normal condition and to cut sections from it.

3. Sections show poor results from staining, as the effect of some acid reagents prevents the securing of sharp definition and contrast.

4. Even with good teeth, it is difficult to secure the membrane *in toto*, as the paraffin sections are very liable to become brittle or curl up.

5. Much important material is lost by decalcifying agents and the irregularity of their action.

6. It is difficult to obtain maxillæ with teeth *in situ* which are fresh enough for examination.

Dr. Black[1] says: "The time the tissue remains in the embedding material must only be counted by minutes, never by hours; and if, after its removal and placing the tissue in water, it does not swell out to its normal proportions in every part, which failure may be detected after sufficient experience by its appearance, it should be cast aside and a new effort made." This statement is open to question, if we may trust our workers of technic. Poor results are too often occasioned by hurried embedding and infiltrating with the penetrating and clearing agents. If once the material has been properly and thoroughly hardened when fresh, the paraffin ought not to cause

[1] Periosteum and Peridental Membrane, pp. 18 and 19.

shrinkage. Tissues may be cut fresh in gum, ether and aniseed oil, but with these methods we expect more shrinkage. Personally, I prefer to use weak decalcifying agents for a number of days, instead of strong solutions for a short time, as advised by Dr. Black; for I believe if the material has been carefully fixed no bad shrinkage will result.

The absence of any concise discussion of this department of odontologic science in current literature is much to be deplored. So far, there is only one small compilation on the subject, and this deals chiefly with the methods for general histologic work, rather than with the methods suitable for dental microscopy. Further original investigation is much to be desired. The best way is to secure some tissue and harden portions of it in various ways, recording every particular; and then, by measuring, estimate the amount of shrinkage, the action of the hardening agents on the cells as regards the distinctness with which they show and their behavior in relation to staining agents. The previous generation of investigators have left us enormous labor in correcting their errors, for they dogmatized upon observations of tissues profoundly altered or modified in course of preparation. All the science of modern histology with its many warnings and precautions, is one great safeguard for avoiding these errors in the future. To save the tissue elements which so readily distort after death, we must secure an immediate preventive, viz., fixation. This may be done by chromic acid, Flemming's solution, Carnoy's modified by Van Hook and Ohlmacher, osmic acid, bichlorid of mercury, gold trichlorid or absolute alcohol. Fixing is especially necessary in preparing the embryonal material. When it contains cartilage, bone or dentine we may use the same fixative, but must follow it by a decalcifier. It must stay long enough in the fixing agent to harden properly and then be thoroughly washed till testing shows it acid-free. (This is not the case with certain special formulæ, which require acidity to stain well.)

The question of imbedding then follows. I obtained the best results with the freezing microtome if each section was carefully worked out. In some cases, however, it is probably necessary to use the paraffin or the celloidin method, and this particularly concerns the embryonal material. In using paraffin, even though decalcified till soft, the teeth invariably became so hard that only a few sections could be obtained from each sample. It was especially hard to avoid "crinkling" so that thin and perfectly flat sections could be made. To obtain sections of the hard and soft tissues together, the method of Drs. Lavis and Vosmaer, now better known since elaborated by Weil, is one of the best, although requiring much time and patience. Chromo-nitric or chromo-hydrochloric acids are good. Picric acid is good, but very slow in its progress. The following are a few of the most successful formulæ: Fresh teeth were dropped at once into

1. *Müller's fluid.*

2. *Chromic acid, 1-6 per cent., 2 parts; alcohol 1 part.*—These were changed constantly, kept in the dark, then thoroughly washed and decalcified in different solutions. It was here that such contrasting results were observed.

3. *Decalcification by nitric acid, C. P.*—Two per cent. aqueous solution, changed daily; time required, eighteen days, to allow a needle to penetrate, then thoroughly washed and in some cases passed through an alkalin solution; then hardened in alcohol of graded strengths. Notes: "Membrane intact; pulp remained in the central canal." The membrane does not shrink and the cells stain fairly well, but not sharp and clear. Carmin gave better results than logwood. If strong solutions are used material must be closely watched, as the acid seems to act suddenly when decalcification is nearly complete, *i. e.*, the tissues though still hard when examined may in an hour or two be all broken into useless detritus."

4. *Chromic acid*, 15 grs., distilled water 7 ozs., nitric acid 30 minims, changed on fourth day to one-half the strength, using fresh fluid daily. Time, eighteen days. Notes: "The membrane appears to be attacked, partially eaten off; it does not shrink; the cells stain well and the pulp is in excellent condition, showing nerves and ganglia cells in a marked manner."

5. *Palladium chlorid*, 0.001 per cent. in water 10 parts; hydrochloric acid 1 part. Changed once. Time, four or five days. Notes: "Does not affect the membrane; the results of cutting and mounting gave most perfect specimens. Staining was not sharp and clear, though somewhat improved after prolonged soaking in solutions of sodium bicarbonate or lithium carbonate and then staining for thirty-six to forty-eight hours. Care must be exercised with logwood to prevent precipitation and the stains should be renewed during the process. The pulp canal showed merely the framework, but no tissue elements. It demonstrates the longitudinal fibers nicely and stains them brown." Sections can be stained somewhat if placed in 1-300 or 1-600 solution of palladium chlorid for one to three minutes, rinsed in water and then put in a cold saturated solution of picro-carminate of soda for eight to sixty minutes. Mount in dammar. Glycerin gives good results here as a mounting medium for immediate use; but for hard or non-decalcified specimens, it affects the structure later. Equal parts of palladium and platinum chlorid is useful where a thickened membrane is found, as it shows connective tissue well.

6. *Phloroglucin* is a good decalcifier and preserves all elements but red blood cells. The agent itself covers the organic part of the tissue against the action of the mineral acids, which can therefore act on the inorganic structure in a more concentrated solution. It is the most rapid decalcifier I have used for bony structures. I recommend great caution in its use for teeth, which it affects somewhat more slowly. To increase its rapidity of action 35 to 45 per cent. nitric acid C. P. can be added and then wash for two days in running water. Staining is easily accomplished after using phloroglucin. If hydrochloric acid is preferred to nitric it may be added in the proportion of 30 per cent. acid with 0.5 per cent. sodium chlorid.

7. *Arsenic acid*, 2 per cent. aqueous solution, changed daily. Time, fifteen days. "Results were uniformly good; membrane normal, cells stain sharply, pulp shows well, filling the canal completely. Arsenic evidently has some special staining powers, as seen in the nuclei of the leucocytes."

8. *Hydrochloric acid and nitric acid.*—[Hopewell Smith's method.[2]] Harden three to four weeks in Müller's fluid; alcohol ten to twenty days; wash in water. Seal the apical foramen with collodion. Immerse in a 15 per cent. solution of the following to decalcify: Hydrochloric acid 12 parts, nitric acid 30 parts, aquæ dest. 108 parts. Immerse in 12 c.c. of

[2] J. R. M. S., 1892, p. 433, and A. Bolles Lee's Vade Mecum.

a 10 per cent. solution of hydrochloric acid, then after fifteen hours add 1.5 c.c. of nitric acid, and after forty-eight hours add again 1.5 c.c. of nitric acid. After seventy-five to eighty hours wash half an hour in a solution of lithium carbonate, 5 grains to the ounce of water; wash in water, cut in pieces, place in gum mucilage and cut.

9. *Hydrochloric acid and glycerin*, in the proportion of hydrochloric acid 5 parts, glycerin 95 parts; is very slow in action, but softens the teeth and preserves the tissues nicely.

10. *Perenyi's fluid* is a most useful agent and gives good specimens, though the subsequent staining is not sharp.

11. *Trichlorid of gold*, 0.5 per cent. aqueous solution, is very useful to demonstrate the transverse fibers, provided the teeth are fresh. Underwood's method may be used when the teeth are not so perfectly fresh.

Staining agents.—The stains used were logwood, borax carmin, picro-carmin, orange and rubin [S.], Weigert's method; dehydration in clove oil or cedar oil. Alum-carmin and glycerin are both liable to dissolve carbonate of lime, and should not be used to preserve pulp stones, etc.

Preservative and mounting media.—Cut sections are apt to curl up when preserved in alcohol. This may be prevented by adding a small proportion of glycerin or carbolic acid to the alcohol. If preferred, 1 or 2 per cent. of the standard 40 per cent. solution of formalin keeps indefinitely. For mounting, balsam in xylol, chloroform, glycerin and glycerin-jelly, monobromid of naphtha and dammar.

Conclusions.—1. No *perfect* decalcifier has been found; but arsenic acid, phloroglucin, palladium chlorid, nitric acid and chromic acid give fair results, preferred in the order named.

2. It is difficult to stain perfectly after decalcification, except in case of phloroglucin and chromic acid. If a satisfactory stain could be found to use after palladium, I would prefer the latter as a decalcifier, even though expensive, for a small quantity of the solution accomplishes much.[3]

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CHRONIC RINGWORM OF THE SCALP.

Read on Opening Discussion on "Chronic Ringworm of the Scalp" in the Section on Dermatology and Syphilography, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY L. DUNCAN BULKLEY, A.M., M.D.

NEW YORK.

Ringworm of the scalp has come to be regarded by those who know most about it as one of the most troublesome diseases of the skin; it is also much more frequent than is commonly supposed.

While the other forms of trichophytic disease occur more or less frequently in adults, its appearance on the scalp belongs especially to childhood. In the writer's private practice there were only 2.5 per cent. of patients thus affected who were over 13 years of age, and about the same proportion in public practice; it may affect those but a few months old.

The damage that the parasite may do in some patients is so slight that the disease is often overlooked and undoubtedly there are many cases which go for years untreated, endangering those around them, as the writer has repeatedly observed both in public and private practice. Alder Smith, of London,[1] has known an outbreak of ringworm to occur in a school from a child with a single spot no larger than a split pea, and where only a few "stumps" could be found on close examination with a lens. Among 1,349 healthy boys, aged from 8 to 10 years, whom he examined for admission to a charity school in London, and who were supposed to be quite free from ringworm of the head, he found this present in 112 cases, or 8.3 per cent. of the whole.

Many cases which came to him with certificates from reputable physicians that their ringworm was cured, were found on careful study to have abundance of the disease in a chronic disseminated form.

In one public institution in New York City, sheltering between seven and eight hundred children, 367 cases of ringworm of the scalp were found, that is, over half of the inmates were infected before the damage was fully realized and active measures for its arrest were inaugurated.

Tinea tonsurans of the scalp is not always as easy of recognition as might be supposed, and in cases which have lasted for any length of time the diagnosis may be very difficult. The typical case of scalp ringworm, exhibiting one or more partially bald patches, of a more or less leaden color, and with stubbed hairs, may be recognized by everyone. But in cases which have lasted any length of time the affected surfaces may and generally do not present this typical tonsure appearance. After a certain duration, and especially after more or less satisfactory treatment, many of the hairs assert their vigor (although by the microscope they may present some evidence of the parasite) and will grow to a considerable length. The real nature of the disease is thus masked and it is only by the most careful search that the "stump" or broken-off hairs can be detected.

To this persistent and rebellious form of the disease the name of chronic or disseminated ringworm has been given, and it is one of the most troublesome affections which can be presented for treatment.

Few realize how exceedingly persistent ringworm of the scalp may become in certain cases. The disease is commonly looked upon as a trivial matter, and undoubtedly in healthy children many cases may yield quite promptly to relatively simple treatment; even tincture of iodin will cure, or seem to cure, a good number of cases. But on the other hand, quite a number of these patients who are supposed to be cured are afterward found still to present evidence of the parasite, which crops out afresh later and, as already mentioned, may start the disease in a school or family.

The physician should therefore be extremely careful whenever scaly conditions of the scalp are presented in children, to determine with positiveness if the trichophyton is present. When the parasite exists on the scalp or hairs, the greatest care should be exercised to prevent the disease spreading to others. And when the patient has been under treatment for this eruption, still greater care should be exercised, if possible, in deciding as to when the patient is cured and no longer capable of infecting others. Few cases of ringworm of the scalp can be thoroughly cured in a short time, such as a month; more frequently from

[3] See Histology of the Teeth, Notes on Preparation, etc.; Histology of the Teeth, International J. of Microscopy and Natural Science, 1889, July and October 1892; 1893, January and October; Histology of the Teeth, Scientific Inquirer, vol. 2, p. 196; Hopewell Smith on Micro Methods in Dental Histology; Underwood: Dental Histology.

[1] Alder Smith: Ringworm Diagnosis and Treatment. 2d edition. London.

three to six months is an average time, while some cases, even in skillful hands, may take years, if the disease has obtained a strong foothold. Alder Smith knew of one patient where the disease had resisted all treatment for nine years, the patient still having disseminated ringworm at 18 years of age. Crocker speaks of a woman of 20 who had had the disease since she was 10 years of age, disseminated all over the head.

Before discharging a case of ringworm as cured, every portion of the scalp should be thoroughly looked over with a hand lens of moderate power and with abundance of sunlight. It is well to have the little patient seated on a stool and, beginning with the back of the head, the whole surface is to be carefully searched. To make any satisfactory examination, the hair should be cut to about an inch in length. Commencing at the occiput the hair is turned upward gently with the blades of the forceps or the finger and allowed slowly to fall into place; this should be systematically done in such a manner that every portion of the head can be minutely inspected. As the pale surface of the scalp comes into view, the short, dark stumps will be readily seen. The same method should be employed in examining new cases, where doubtful, and also with children in schools where it is desired to surely detect the disease.

The subject of the treatment of chronic ringworm is a very large one and can hardly be touched upon in this opening of the discussion. It may be premised, however, that the writer quite agrees with the opinion of others that it will often tax the ingenuity and patience of the physician very greatly; and that time is a very essential element in the cure of the disease. The occasional reports of very rapid and certain cures of ringworm of the scalp are to be taken with a great deal of caution; the experience of all who know much about the disease will, I think, confirm that they relate either, 1, to very early cases in very healthy subjects, which yield readily to any well directed treatment; or 2, to cases where previous treatment had largely removed the disease, and, as is often the case, victory comes to the last attendant; or 3, to cases where there was a faulty observation, either in regard to the diagnosis or as to the completeness of the cure. It is not at all uncommon to meet with patients exhibiting chronic ringworm of the scalp who have been regarded as cured by other practitioners.

It would be out of place to dwell here upon the important studies which have been recently made in regard to the fungus of ringworm of the scalp, excited largely by the bold and original work of Sabouraud, at the Hôpital St. Louis, in Paris; while they are of interest and importance from a scientific point of view, as yet they have yielded little, if anything, in regard to the practical management of the disease. They may, however, often have a practical bearing in the direction of prognosis, if careful microscopic studies are made as should be done in every case; for it is pretty well accepted that those exhibiting *microsporon* fungus are more apt to prove rebellious than those presenting only the *megalosporon*.

In regard to the treatment of chronic ringworm of the scalp the remedies which have been advocated at one time and another are so many and varied that the mere enumeration of them would occupy much more time than should be given in the opening of the discussion; they will no doubt be fully considered in the papers and remarks which will follow.

EXPERIENCE IN THE TREATMENT OF RINGWORM OF THE SCALP IN THE NEW YORK SKIN AND AND CANCER HOSPITAL.

Read in the Section on Dermatology and Syphilography, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY HENRY A. PULSFORD, M.D.
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The materials from which this paper has been constructed were drawn from the clinical records of seventy-five cases of ringworm of the scalp treated in the wards of the New York Skin and Cancer Hospital during the ten years ending in the spring of 1892. The purpose of the paper being neither to present a brilliant array of suspiciously favorable statistics, nor to puff any one method of treatment, this series of cases has not been subjected to any process of selection or elimination. And if the facts, when allowed to speak for themselves, tell of failure more often than of success, the lesson they teach us is no less valuable on that account.

Of the seventy-five patients who have furnished the facts for this report all were inmates of the hospital during the whole course of their treatment. They were therefore constantly under the care of the resident physicians, under whose supervision all the details of treatment were carried out. The scalps were subjected to frequent examinations, scales and hairs from the diseased areas being examined microscopically, and all changes in the conditions of these areas noted from week to week. In fact all the circumstances were favorable not only to the cure of the patients, but to the accumulation of important data as to the comparative value of the various methods of treatment employed.

Favorable as these circumstances were, it is nevertheless an exceedingly difficult task both to make accurate notes in the records of the cases and to interpret those notes correctly. For after the first cleansing and epilation, the changes in the diseased areas are so slow and trifling that it is often impossible for several weeks to say whether the disease is increasing or diminishing; and, as always happens under such circumstances, the records of the observations and examinations will invariably be modified and colored by the prejudices of the reporter. If, therefore, the inferences drawn from this mass of evidence are to be of any value or significance, due allowance must be made both for all possible errors of observation and for the personal bias of the observers.

The comparative value of different methods of treatment could probably have been more satisfactorily determined if, in addition to the microscopic examinations, systematic cultures had been made of the hairs and scales taken from the diseased spots. Such cultures if properly made, would give us valuable indications, not only of the parasitical properties of a remedy, but also of its ability to penetrate to the depths of the hair follicle.

It is to be regretted that at the time these hospital records were taken, Sabouraud had not yet published the results of his investigations of the mycology of the ringworm, nor emphasized the striking clinical differences between the two varieties of ringworm of the scalp. Although some of the house physicians possibly noticed the differences between the small-spored fungus external to the hair shaft, and the large

spored "trichophyton," infiltrating the hair-shaft, none of them having made any notes of such observations, it is impossible to arrive at any conclusions either as to the relative frequency of the two types of disease, or as to their relative resistence to the various methods of treatment employed.

The results of treatment in these seventy-five cases can scarcely be called brilliant. Of this number only twenty were discharged cured. This is certainly a very small percentage. But in judging the results of treatment in these diseases, it must be borne in mind that long continued treatment is almost invariably required to accomplish a permanent cure. Unna, it is true, has reported cases of ringworm cured by chrysophanic acid in two or three weeks, but few, if any other, physicians have had as happy results with this or with any other remedies. Wickham,[1] using another method of treatment, cured only from 40 to 60 per cent. of his patients in the course of fifteen months. Pottevin,[2] after using applications of formic aldehyde for more than three months, reports his cases as still very far from being cured. It is not surprising, therefore, that of these cases, in which the duration of treatment averaged twenty-two weeks, only about 25 per cent. were cured. Indeed, the chief obstacle to the cure of these cases lay in the impatience of the parents or guardians, who in many instances could not be induced to leave their children in the hospital long enough to permit the complete eradication of the disease.

Of the many physicians who report their cures of ringworm of the scalp very few tell us upon what grounds they base their assumptions of cure. The fact that a patient whom you have discharged as cured from a hospital or from your office, does not return to you, is by no means proof positive that his "cure" is permanent. If, in spite of your dictum, the disease returns at the end of a few weeks, the patient naturally discredits your knowledge and skill, and applies elsewhere for advice and treatment. In these cases we should be very skeptical of results, especially of brilliant results—when the reporter neglects to tell us how he determines that the disease is finally eradicated. Wickham[1] advises that no case be reported cured until the following examination has failed to reveal the parasite: The hair having been cut short and the scalp thoroughly washed, the head is left absolutely undisturbed for a week; then the scalp is carefully examined for evidences of disease. If none are found the hair is cut again, the scalp washed, and the head left undisturbed for another week, when the second examination is made. If that also prooves negative the head, after hair-cutting and washing, is left untouched for two weeks, at end of which period the final examination should be made. Although all the details of this excellent method of examination were not carried out in the New York Skin and Cancer Hospital, our patients were not discharged as cured until they had passed through a similar ordeal. The essentials of this method—repeated examinations of the scalp at short intervals during which all treatment was stopped—were strictly carried out in all cases.

As has often been stated, the best cure for ringworm of the scalp is puberty. It is therefore important in considering the effects of treatment upon a series of cases of this disease, to bear in mind that it is really a self-limited malady, and not to give to remedies credit for improvement which is really due to the increasing age of the patient. There is no doubt that in many of the cases here reported the advent of puberty has had more to do with the cures than has the application of drugs. Yet our ringworm patients have as a rule been so young, their average age at the time of treatment being only 7½ years, that the element of puberty can certainly be disregarded in the case of most of their number.

In all of our cases the preparatory treatment has been practically uniform. The hair has been cut close, usually with the clipping machine, and the scalp has been freed from crusts and scales by scrubbing with green soap, preceded when necessary by a preliminary soaking in oil or petrolatum. In some cases, especially when such preparations as collodion or plasters were to be used, the whole scalp was shaved. In all cases the hair was kept conveniently short throughout the course of treatment.

The hair-cutting and cleansing was in most cases followed by the careful epilation of the diseased areas. This was done, in the first place to remove from the scalp as thoroughly as possible all the brittle diseased hairs, and in the second place with the view of isolating infected areas by epilating a fringe of healthy hairs about their margins. The epilation of the diseased hairs themselves I consider an eminently proper procedure and an important detail in the management of these cases. The extraction of the diseased hairs, if properly done, is not at all painful; but if it is done hastily and carelessly, is painful and ineffectual. It needs no argument to convince one who is acquainted with the pathology of the disease, that the removal of as much as possible of the infected hair-shaft is a great desideratum. By careful and patient work with epilating forceps and magnifying glass it is usually possible in a comparatively short time to remove the greater part of every diseased hair.

On the other hand I have always had doubts as to the wisdom of epilating the healthy hairs on the verge of diseased areas. The object of this procedure presumably is the isolation of each center from which the disease may spread; but what assurance is there that such epilation prevents the spreadiug of the disease? It is well known that both varieties of the fungus are capable of growing in the superficial layers of the epidermis, while only the trichophyton megalosporon actually infiltrates the shafts of the hairs. It is therefore only reasonable to suppose that in either form of ringworm the extraction of the healthy hairs about the diseased areas will not only fail to check the spread of the disease, but, by making the mouths of the follicles more patent to the entrance of the spores, will actually encourage the extension of the growth into the lacerated epidermis of the unprotected hair follicles. If there be any force in such reasoning as this, we should be very careful in epilating to spare all the healthy hairs, trusting to cleanliness and antiseptic applications to hold the disease in check.

However this may be, the greater part of the epilating to which the patients at the Skin and Cancer Hospital have been subjected, was of the indiscriminating sort. It was carried out in such a way as to remove all hairs, both healthy and diseased, from the infected spots and from a liberal zone surrounding them. That the disease actually did spread in several instances in spite of this wholesale epilation, the hospital records clearly assert. That it did not spread in more cases, was doubtless due to the vigorous use of antiseptics. Since these considerations impelled me to give up the practice of "isolating" areas of ring-

worm by epilating healthy hairs, I have never had cause to regret it. The proper antiseptic applications will protect the healthy hair follicles better than the removal of hairs can possibly do so.

The average duration of treatment in all cases was five and a half months. In the twenty cases that were cured the duration of treatment averaged seven and a half months. It is probable that could all the seventy-five cases have been subjected to a course of treatment lasting eight months, which according to Wickham[1] is the shortest time in which a cure can be obtained, a much larger proportion would have been relieved. Yet we are obliged to confess that in the case of six of our little patients a vigorous treatment was carried out for periods varying from thirteen to seventeen months without eradicating the disease. It is difficult to tell just what is the cause of the obstinacy met with in such cases. As our hospital records throw no light upon this question, we are almost forced to the conclusion that some idiosyncrasy on the part of the patients themselves makes their scalps peculiarly suitable to the growth and luxuriance of the fungus.

The general method of treatment in all these cases has been, in addition to repeated cutting of the hair and epilation, the application to the diseased portions of the scalp of substances which, either by their chemic properties or by the manner in which they were applied, might be expected to destroy the parasite. Some of these remedies, such as bichlorid of mercury, iodin and carbolic acid, are supposed to act simply as poisons fatal to the fungus; others, like collodion, the various plasters and the zinc and gelatin paint, owe what efficacy they possess probably to their exclusion of the air; croton oil and other similar irritants cure the disease only by causing a suppurative process in the invaded hair follicle which, destroying the follicle, leaves a minute scar in its place.

The preparations of mercury have all been thoroughly tried upon our patients. The bichlorid in particular has been constantly used in various solutions, mixtures and combinations. The treatment of all the vegetable parasitic diseases of the scalp by the extraction of the diseased hairs and the subsequent application of a strong solution of this substance is by no means new, having been introduced by Bazin forty years ago; and it is questionable if this classic treatment does not give as good results in the first stages of the cure, as any more modern method. Upon our cases the solutions used have varied in strength from .5 to 2 per cent. In all cases improvement followed the application of the remedy, but for some reason the treatment was never continued sufficiently long to work a cure. It apparently made no difference what solvent was used for the mercury salt. Solutions in alcohol and solutions containing ether seemed to possess no greater efficacy than aqueous solutions. A 1 per cent. solution containing ether was used for three months without effecting a cure. A solution of the same strength, but containing in addition 30 per cent. of oil of cade, was used for the same length of time with the same result. A 1 per cent. solution in the compound tincture of benzoin proved no more efficacious than the other solutions.

The chief cause of failure in this and in other methods of treatment seems to be the difficulty of making any remedy penetrate to the depths of the diseased hair follicles. This difficulty has long been realized by all physicians who have had much to do with ringworm of the scalp, and as a result many methods have been proposed with a view to overcoming it. One of them, suggested by Harrison some years ago, consists in the successive application of an alkalin solution of iodid of potassium and a solution of bichlorid of mercury. The idea seems to be that the iodid solution, being more penetrating than the bichlorid, prepares the way for it and by the power of chemic affinity carries it deeper into the follicles than it could go unaided. The method has been thoroughly tried upon some of our cases with mercurial solutions varying in strength from 2 to 4 per cent. The bichlorid being changed to the biniodid upon the scalp, the treatment is naturally a severe one, producing considerable pustulation. For this reason it is difficult to use it for a long period of time. In two cases, however, it was continued for about five months without effecting a cure.

The use of the galvanic current to favor the penetration of parasiticides was suggested by Ambrosi[4] in Italy and by Cantell[5] in this country in 1888. Upon our cases the method has been employed in connection with an aqueous solution of bichlorid. A sheet of lint saturated in a 1 to 1,500 solution was placed upon the scalp and pressed in contact with the diseased area by the positive pole of the battery. The other pole was placed upon an indifferent spot and the current allowed to flow for fifteen or twenty minutes twice daily. Unfortunately, the records give no information whatever as to the strength of the current. This treatment was tried upon three cases for two months, but with no greater improvement than would have resulted had the same solution been thoroughly rubbed into the scalp.

Still another method of promoting the penetration of bichlorid was suggested by Dr. A. C. Lewis, one of the resident physicians of the hospital, who first used it early in 1890. In the *New York Medical Journal* for Oct. 10, 1891, Dr. C. G. Kerley reports brilliant results from the use of the same prescription, an emulsion made by adding a saturated alcoholic solution of bichlorid to kerosene oil. The emulsions used upon our cases have varied in strength from .5 to 4 per cent. The capillarity or these petroleum oils is well known, and the microscope shows that in all probability they penetrate deeply into the hair follicles; but it is a question if the oil can carry with it the fine particles of bichlorid which it holds in suspension. This emulsion has been used in the hospital upon sixteen cases, with improvement in all cases upon which the treatment was continued longer than a week or two. Although the average duration of treatment in the cases Dr. Kerley reported as cured was six and a half weeks, we have treated several patients for periods varying from six to ten weeks without effecting a single cure.

The oleate of mercury, one of the most popular remedies for ringworm, has been used upon about fifty of these cases. It has been used diluted with various oils, ointment bases and solvents, the strength of which varied from 2.5 to 20 per cent. One case which had already undergone a long course of treatment with other remedies was cured after ten days' use of a 10 per cent. solution of this substance. Two other cases were cured after three and four weeks' treatment with equal parts of the 10 per cent. oleate and lanolin. Two more cases yielded after six and nine weeks' use of a strong ethereal solution of the oleate. In several instances, however, similar appli-

cations, although causing undoubted improvement, failed to eradicate the disease and were given up after two or three months' trial.

Closely resembling the oleate of mercury in its penetrating qualities is the ointment of the nitrate of mercury. This vigorous agent has been used diluted with simple ointment bases and as the most active ingredient of several prescriptions upon eight cases. It is probably as effective a remedy as the oleate; but as it is too irritating for long-continued use, it is practically of far less value. None of our cases were cured while applications of any preparation or combination of this substance were being used. The long-continued use of this and similar irritating remedies fails to accomplish a cure for this reason; the effect of the remedy upon the epidermis is to transform its superffcial layers into a thin, horny pellicle, which acting like a varnish upon the surface of the scalp, in itself forms an efficient obstacle to the penetration of subsequent applications. It is only after this pellicle is carefully peeled off that any parasiticide can be expected to reach the hair follicles.

A mixture of equal parts of iodin ointment and mercurial ointment diluted and undiluted has been used upon nine cases with varying results. One of these cases was cured after five weeks' treatment with the full-strength mixture, but two similar cases after being treated with the same prescription for six months still showed signs of active disease. In another scalp under the same treatment for ten weeks the disease actually spread.

Ointments containing white precipitate and the red oxid of mercury have been used upon many of these cases. All that can be said in their favor is that they cause some improvement at first and later hold the disease in check, and prevent extension to healthy hair follicles. The following prescription has been used in several cases for long periods of time, and although it can scarcely be expected to eradicate the disease, it is an excellent application to use when we wish simply to guard against contagion and auto-infection.

℞	Unguenti hydrargyri oxidi rubri	ʒ iii	12
	Unguenti sulphuris	ʒ v	20
	Unguenti zinci oxidi.	ʒ i	32

Misce et fiat unguentum. Sig.: Apply once or twice daily.

Except in such prescriptions as the above, sulphur has not been very thoroughly tried in the hospital, the results in the few cases upon which it was used not having been sufficiently encouraging to warrant further trials. The same thing is true of sulphurous acid, the sulphites and hyposulphites. Our experience with these substances has been too meagre to enable us to form an estimate of their value. With ichthyol, however, the case is very different. This remedy has been used in many combinations, the one which we have used most frequently being a mixture of equal parts of ichthyol, oil of cade, and either cotton-seed oil or crude petroleum. Most of the patients upon whom this has been tried have been decidedly benefited, but only one of them was cured while using it. In one case, however, it was applied for ten weeks without improvement, and in another the disease spread while it was being used.

Iodin has been used chiefly in the treatment of ringworm of the body, and for occasional application to freshly diseased spots upon the scalp. In cases where the tincture or the solution has been applied as a systematic method of treatment, there has generally been decided improvement. It is so irritating, however, that even the weaker solutions can not be used for more than a few weeks. In one case the result was exceptional, for after three weeks' treatment with a 4 per cent. solution in crude petroleum the disease was found to be extending.

Carbolic acid has been used upon these cases rather to prevent contagion and the spread of the disease than as an active curative agent. In five cases, however, upon which a 1 or 2 per cent. ointment was employed for this purpose, there was a decided extension of the disease. It is therefore evident that the weaker carbolized ointments are absolutely useless. Where stronger ointments have been applied with the object of eradicating the trouble, they have brought about a moderate amount of improvement. Pure carbolic acid, systematically applied to the diseased spots in six cases, improved the condition in only two of them. It is evidently too irritating a remedy to penetrate deeply.

Naphthalin in 20 per cent. ointment has given encouraging results, two cases having been cured after five and five and a half weeks' treatment. As these were the only cases in which this remedy was used it certainly seems worthy of a further trial. A similar substance, hydronaphthol, has been tried in ointment and plaster upon several cases, with varying results. In one case in which the scalp having been shaved, the diseased areas were covered with the plaster, there was a manifest spread of the disease.

Oil of cade offers no especial advantages as a therapeutic agent in this disease. The best that can be said of it is that it holds the disease in check, and, if its use be long enough continued, that it produces moderate improvement.

Veratria has been used in ointments containing from eight to thirty grains to the ounce. Two cures have resulted, one after five and the other after seven weeks' treatment. It would be fallacious, however, to form a high estimate of the value of this drug from these two cases, for they had previously been subjected to long continued vigorous treatment, and in another case a strong ointment used for nine weeks failed to prevent the extension of the disease. It is a question if it is safe to use such a powerful alkaloidal poison as this in the treatment of this disease.

Salicylic acid in solutions and in ointments has been used upward of fifty times with varying results. An ointment containing 12.5 per cent. of this remedy and 30 per cent. of sulphur cured a patient in three months, but other similar applications have been used in vain for periods varying from six weeks to eight months.

Chrysophanic acid, the use of which in the treatment of this disease was suggested by Unna, has been thoroughly tried upon about twenty of our patients. In some of these there was no improvement whatever, and in most of them the improvement was not sufficient to induce us to continue the trial longer than a few weeks. One case, in which the prescription first suggested by Unna was applied, was cured in nine weeks. From the observations made upon these cases, it seems quite evident that chrysophanic acid does not reach far into the follicles, and is powerless against the fungus which grows there. Hairs removed from scalps which have been subject to this treatment, are seen under the microscope to be compact, free from spores and deeply stained only in the extra-follicular portions, while the intra-follicular portions are succu-

lent, unstained and filled with a vigorous growth of fungus.

Fuchsin, another powerful staining agent which has been tried upon these cases, may be dismissed with a few words. One case was cured which under treatment with a 1 per cent. aqueous solution, but as it had previously been subjected to a prolonged and vigorous treatment with oleate of mercury, it is not improbable that the disease was actually eradicated before the fuchsin was tried. That the remedy is useless in these cases, seems to be demonstrated by the fact that there is absolutely no staining either of spore or of mycelium, however vigorous and protracted the treatment may have been.

Croton oil has been used only upon four or five of these cases. The remedy was in all cases applied frequently to the diseased spots until it produced a localized dermatitis with more or less follicular suppuration. In all cases this treatment was followed by some improvement, but is very severe and likely to cause extensive atrophy of the hair follicles. Probably the true value of this remedy is in the last stages of treatment, when it is introduced into isolated follicles on the point of an electrolysis needle in order to destroy the last lurking places of the disease.

From the foregoing analysis we may conclude that of all the remedies used upon these seventy-five cases, the preparations of mercury have proved the most efficient. Of the others, iodin, naphthalin, salicylic acid and chrysophanic acid seem worthy of further trial, while croton oil, properly used, is as valuable as electrolysis in eradicating the last traces of the disease. The results obtained at the New York Skin and Cancer Hospital in the treatment of ringworm of the scalp, finally, give full corroboration to the recent dictum of Wickham: "No matter what methods are employed, the duration of treatment necessary to the thorough cure of ringworm of the scalp can not practically be reduced to less than eight months."[1]

REFERENCES.

1 "Une Epidémie de Teigne Tondante à l'Asile Mambreehts," par M. Louis Wickham, Annales de Dermatologie et Syphilographie, 1894, p. 629 et seq.

2 "Essai de Traitement des Teignes, par L'Aldehyde Formique," par M. Pottevin. Annales de Dermatologie et Syphilographie, 1894, p. 808.

3 "Treatment of Tinea Tonsurans," J. Harrison. British Medical Journal, 1889-90.

4 Article by A. Ambrosi in Raccoglitore Medico, Farli, 1888.

5 "Electrolysis in Herpes Tonsurans," by Cantell. The Polyclinic, Philadelphia, 1888.

DISCUSSION.

Dr. WOLFF of Atlanta considered that in connection with the care of patients in institutions suffering from ringworm of the scalp that isolation was very difficult to obtain; and then there were the factors of the playground, of towels and of the wash bowls. As far as treatment was concerned he had tried almost everything. The plan which he had learned in Unna's clinic in Hamburg he had perhaps found to be the best, and this was that the head was to be shorn, then washed with soap and then the following ointment to be applied with considerable friction twice a day, and used for several weeks:

℞	Chrysarobin	5 parts
	Acid Salicylic	2 parts
	Ichthyol	5 parts
	Vaselin	88 parts

Then if much irritation resulted, a milder salve such as

℞	Zinci oxidi	6 parts
	Sulph. precip.	4 parts
	Lard	20 parts

This was used until the irritation was reduced. Caps were to be worn by the patients all the time, except when being treated. Dr. Wolff remarked that he had never seen such rapid cures as in Unna's clinic, where this plan was adopted.

Dr. M. B. HUTCHINS of Atlanta confirmed Dr. Bulkley's observation since he had been his assistant at the New York Skin and Cancer Hospital. He had tried, where there was only single patches of ringworm of the scalp, a mixture of corrosive sublimate, 1 to 4 grs., with kerosene oil, one ounce, until a thick scaly condition was produced, when the application was changed to an ointment which contained the following:

℞	Ichthyol	20 grs.	1·20
	Acid salicylic	20 grs.	1·20
	Zinci oxid	ʒ i	32·00

until the scales were removed. He had seen cases get well in three months under this treatment.

Dr. SWARTZ of Providence, R. I., had seen about six cases in institutions, and he thought that mercurial ointments were too astringent, hardened the tissues and did not kill the spores. One thing had not so far been mentioned, and that was the special penetrating power of formol, which did not thicken the tissues and ought to be tried. Since the parasite spread only by contact it seemed astonishing that was not easily able to destroy the spores.

Dr. A. RAVOGLI of Cincinnati, who had had considerable experience with ringworm of the scalp in children's homes containing from 600 to 900 inmates, had met with only nine cases of ringworm of the scalp last year and three cases this year. As soon as the disease was discovered the patient was sent at once to the Cincinnati Hospital. For treatment he had used all the remedies which had been recommended, but was not satisfied with any one of them, and he had again returned to the older methods. The course which he therefore adopted was as follows: The hair was cut close, then the scalp was washed with green soap and water, after which the diseased areas were rubbed with Hebra's modification of Wilkinson's ointment. This treatment was carried out twice a day until desquamation began, when a rest was allowed. The same treatment was then renewed. In two or three months the child was cured and returned to the institution, and up to the present no case had been returned.

Dr. A. W. BRAYTON of Indianapolis recommended the use of an old depilatory, called Boettger's paste, which he said was an excellent remedy for removing hairs. The treatment of a case of ringworm of the scalp would then be as follows: The hair to be cut close to the scalp; the Boettger's paste (prepared by passing sulphuretted hydrogen into thin milk of lime till the mass assumes a bluish-gray color) to be applied to the thickness of a line and scraped off after a minute or two with a blunt knife, when the hair would easily come away; then the scalp is rubbed with the parasiticide.

Dr. T. C. GILCHRIST of Baltimore referred to the prevalence of ringworm of the scalp in colored children in public schools. The appearance presented was often not that of typical ringworm, but rather of a profuse grayish scaliness of various portions of the scalp. On account of the method of living of the negro population, it was almost impossible to treat these cases thoroughly. Since the hair is so short and curly in many colored children, Dr. Brayton's suggestion of using Boettger's paste as a depilatory would be a valuable one in these cases. Yet with all the disadvantages, the ringworm in colored children appeared to be more easily cured in a few months with somewhat simple treatment than the white children. The treatment recommended was the following: The scalp was washed twice a day with the tincture of green soap and water, and an ointment consisting of hydrarg. ammon. 1 dram, and lanolin 1 oz., was well rubbed in twice a day. In a fair number of the cases tinea kerion developed, showing that the spores had penetrated much deeper, as was shown by microscopic sections. Dr. Gilchrist also remarked that this disease was a very prevalent one in Baltimore, and particular care was taken that a child should be thoroughly cured before it was allowed to go to school.

Dr. BULKLEY of New York remarked that the clippers could

be used just as well as the depilatory and the instrument could be boiled for half an hour after it had been used on each child. He had seen shaving spread the disease, and so he had abandoned it. When ordering the tincture of soap he had added corrosive sublimate, two to four grains to the ounce, if there was no irritation of the scalp. He thought that Dr. Brayton's suggestion of using Boettger's paste was still a good one, since the parasiticide applied afterward would have a deeper penetrating power. The suggestion also of using formaldehyde was a good one, and he intended trying it. In the chronic cases he recommended internal treatment with tonics and also rigid dietary, because unless the soil was altered the case of ringworm was never cured until puberty. He recommended that all children who had any scaly condition of the scalp should be examined for ringworm, *i. e.*, by examining the scales microscopically before entering institutions. He mentioned that the microsporon was the cause of the chronic form, whereas the megalosporon was the cause of the acute.

Dr. C. W. ALLEN of New York said he had cured one case of ringworm in one week. It was an acute case and the ring was partly on the forehead and partly on the scalp. Infant's ringworm was easily cured and was not to be confounded with chronic ringworm of the scalp.

Dr. W. T. ALLEN of Davenport, Iowa, remarked that in an institution containing 500 inmates there was an outbreak of ringworm of the scalp. There were 40 cases at first, which increased later to 80. At the end of the first year only 6 to 8 cases were left, but during the second year there were again 80 children affected. Eight of the original patients had the disease even after three years. None of the cases had been isolated until this last autumn (1895). In the first outbreak 1.5 per cent. of corrosive sublimate with red biniodid of mercury was used as a wash every day. Later much stronger applications were used, even up to 30 grains of corrosive sublimate to one ounce of water. In some cases the effects were serious, and one child, 5 years old, died during the treatment, but in others it was not so severe. The ages of the patients varied from 2 to 16 years of age. There were yet 46 cases under observation. New children entering the institution were attacked with the disease in about six weeks. Boys were more attacked than girls.

MASSAGE.

BY JOHN KERCHER, M.D.
CHICAGO.

Having had a number of years of personal experience in the application of massage; having seen massage applied by so-called professors of massage; also having read all available literature on the subject, I was amazed at the diversity of opinion and often utter lack of knowledge of the subject, as to what constitutes scientific massage. On the other hand there are a few books in the English language that treat the subject in an able and scientific manner. I was therefore prompted to write this article in order that the general practitioner may become better acquainted with the indications, contraindications, physiologic action, etc., of massage. I have for this reason taken up the subject in a scientific manner, hoping that the use of massage be thereby elevated and placed in the hands of physicians, where it belongs.

DEFINITION OF MASSAGE.

Dunglison, 1860—Massage; massement; massing—all have the same meaning[1]—shampooing.

[1] The definition as given in Dunglison's, 1860, is wrong, as will be seen by a comparison of its manipulations:

TABLE OF MANIPULATIONS OF MASSAGE.		
Effleurage, with subdivisions meaning Stroking.		
Frictions,	" " "	Semicircular, circular and to and fro motions.
Petrissage,	" " "	Kneading and pinching.
Tapotement,	" " "	Tapping or percussing.

Webster's Unabridged Dictionary, 1890—Mass; masse; massa—and meaning dough, mortar, etc. These words seem to belong to the root of the Greek word μασσω—meaning to beat, or pound, or knead. The same word is also found in the Arabic language—mass—where its meaning is to press softly.

Quoting Tom Cecil, who in 1888 published a book, and who claims to have been masseur to several London hospitals, he took the following definition from the "Medicales Sciences," Paris:

"It is that action of pressing with the hands the muscular parts of the human body; to exercise traction on the juncture of bones and muscles in order to give them their flexibility or pliableness."

According to Dr. Metzger of Amsterdam, massage is a scientific treatment, *i. e.*, based upon the anatomy and physiology of the human body; its manipulations are certain, that is, given or fixed; it is an art that can not be self-acquired; all manipulations are passive, *i. e.*, applied to the patient without his assistance or resistance; the manipulations are arranged so as to act systematically upon the different tissues of the human body.

Gould's Medical Dictionary, 1891, gives the following: Massage (Fr. from μασσω—the Greek, to knead). A method of effecting changes in the local and general nutrition, action, etc., of the body, by rubbing, kneading, etc., the superficial parts of the body by the hand or an instrument. Effleurage, a stroking movement made in a centripetal direction. M. Frictions, superficial rubbing. Petrissage, a portion of a muscle or tissue is picked up, subjected to firm pressure and rolled from below upward. Tapotement, percussion by the hand or an instrument devised for the purpose.

Hare's System of Practical Therapeutics, Vol. 1, devotes 100 pages to Swedish movements and massage. On page 261 is the following definition: "Massage may be defined to be the communication of motion to the tissues of the body from an external source for therapeutic purposes." This at once distinguishes it from movements in which, as already said, the motion takes place through the joints and is extended to the entire extremities, or the trunk. And it also separates it from general exercise, which implies in addition volition, and therefore the communition of motion from an internal source.

It is not egotism which prompts me in adding another to the already too numerous definitions. The following definition defines massage in fewer words than any of the foregoing: Massage is a process of passive, systematic manipulations upon the soft parts of the body, generally without water. I say generally without water, because if these various manipulations be applied to a person while bathing it is still massage. A female operator is a "masseuse," a male operator is a "masseur," while the patient is masseed (pronounced massayed).

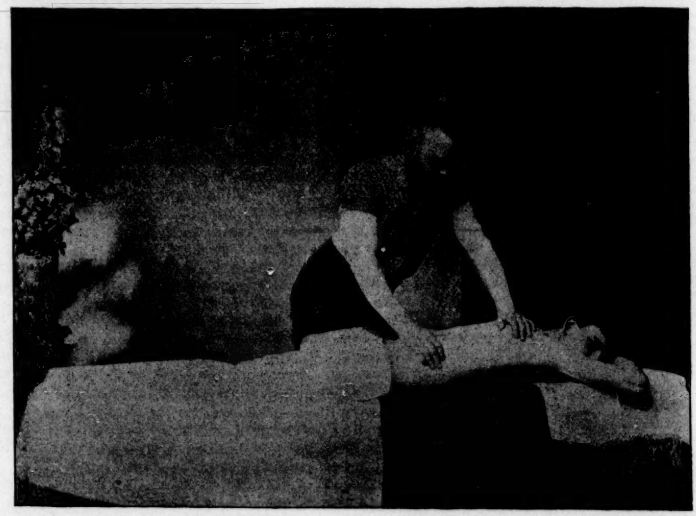
The ancient history of massage condensed.—Rubbing, friction and pressing of the soft tissues for certain painful and diseased conditions, undoubtedly existed in the customs of all nations, civilized, semi-

Is generally given without soap and water. Object—To cause a tissue change, to act as a sedative or stimulant or alterative, according to application.

TABLE OF MANIPULATIONS OF SHAMPOO.	
Effleurage, a Stroking.	
Frictions,	Semicircular, circular or to and fro motions.
	Slapping, with the flat hand or "hollow" palm.

Is always given with soap and water, with a brush, loofahs, soft rag or glove, etc.; most always preceded by a "sweat" in the hot room. Object—General cleanliness.

civilized and uncivilized, from time immemorable. Sometimes these had connections with religious rites. How these manipulations originated we do not know, except we may assume that in certain affections the people instinctively pressed, rubbed or otherwise manipulated the parts. Any person who has perhaps never heard of massage, rubbings, frictions, etc., may accidentally receive a blow on some part of the body, and immediately the hand is carried to the point and either pressed or rubbed and the pain will be relieved. This same instinct is present in animals. A dog as soon as he is injured will lick the part. In examining the ancient history of Greece, Rome, Arabia, Egypt, China, we find many references made to friction, unctions, rubbing, squeezing, etc., as the following. Herodicus, one of the masters of Hippocrates, in the fifth century B. C., first proposed gymnastics for the cure of disease and the preservation of health. From Herodotus we are informed that after having poured a greasy mixture upon the body, each part



should be rubbed. The writings of Plato abound with references, direct and indirect, to friction. Hippocrates, 460 to 380 B. C., says the physician must be experienced in many things, but assuredly also in rubbing. It was Hippocrates, "the Father of Medicine," who used the word anatripsis, the Greek equivalent for the process of massering, although he did not understand the reason of it, as it was not till 500 years after that Galen pointed out that the arteries were not filled with air, as their names seem to imply.

Asclepiades, 128 to 56 B. C., founded a school, practiced at Rome and was very popular with the Romans on account of his simple and agreeable remedies. He relied mainly on diet, bathing, exercise and friction. Cicero, 106–43 B. C., considered that he owed as much of his health to his anointer as he did to his physician. Plutarch, 100–44 B. C., tells us Julius Cæsar was pinched all over daily, as means to a cure of a general neuralgia. Celsus, the distinguished Roman physician, who flourished about the commencement of the Christian era, spoke wisely and well of rubbing, in saying that it should sometimes be applied to the whole body, as when an invalid requires his system to be replenished. Hadrian, 76–138 A. D., the able and wise emperor, seeing a veteran soldier rubbing himself against the marble at the public bath house, asked him why he did so. The veteran answered: "I have no slave to rub me," whereupon the emperor geve him two masseur slaves and sufficient to maintain them.

Pliny the celebrated advocate, in one of his letters to the Emperor 103 A.D. says, that his life having been in danger from a severe illness he availed himself of a mode of treatment, which it is presumed was much in vogue at that time. He procured the services of a medical practitioner who cured many of his patients by the process of rubbing and anointing, and so much benefit did he derive from the treatment that he asked the emperor to grant the physician, " who was a Jew," the freedom of the city and the privileges of Roman citizenship. Galen, 130–200 A.D. the most learned physician and accomplished man of his age, whose authority in medical matters was regarded in Europe as almost supreme for a thousand years, recommended friction in a great number of diseases. At Pergamus, his native city, he was appointed physician to the school of gladiators these were rubbed before and after their exercises and combats. Before, in order to increase the elasticity and strength of their limbs and after, in order to stroke away the ecchymoses, relieve the pain of the bruises and to rest and refresh them from their fatigue.

Strabo states that the Indians contemporary with Alexander, 326, B.C., esteemed friction highly. They polish their bodies with ebony staves and in other ways manipulat the body. Paracelsus, 1492–1541, in his "Liber de Vita Longa" extols highly the effects of friction on the human body, as indispensable to health

Ambroise Paré, 1517–1590, A.D., who was employed by a family as barber-surgeon and to say the family prayers, but who became the most renowned surgeon of the sixteenth century; the inventor and originator of ligation of arteries, which is the foundation of modern surgery, speaks of friction in dislocations, and recommends passive movements of the joints. Mercurialis, 1530–1606, A.D., an eminent Italian physician who graduated at Padua, published in 1573 a treatise entitled "De Arte Gymnastica" in which he commends the benefits to be derived from active, passive and combined movements.

Alpines, 1553–1617 A.D., a celebrated botanist, occupying the chair of botany at Padua in 1593, in his "Medicina Ægyptia" says that frictions are so much in use among the Egyptians, that no one retires from the bath, without being rubbed; for this purpose the person is extended horizontally, then malaxed, manipulated, or kneaded and pressed, in various manners upon the different parts of the body, with the hands of the operator. Guyon, 1615 A.D., in the "Mirror de La Beauté" says, exercise and friction are advised and it is considered necessary to have the body rubbed gently by some person who has soft hands. Hoffman, 1660–1742, A.D., physician to the king of Prussia, whom we are not likely to forget, so long as the anodyne, which bears his name, continues to be used, in his "Dissertations Physico-Medical" 1708, says that exercise is the best medicine for the body. The illustrious Sydenham, 1624–1689,[2] abandoned the routine system of practice then prevalent, and based his own upon the theory, that there is in nature, a recuperative power which ought to be aided, not opposed. An example of this is found in his saying that, if anyone knew of the virtues of friction and exercise, and would keep this knowledge secret, they might easily make a fortune. This is fully exemplified at the present day, for in every city of the United States, and indeed, of the whole civilized world, there may be found individuals claiming mysterious and magical powers of curing disease, setting bones and relieving pain by the immediate application of their hands. Some of these boldly assert that their art, or want of art, is a gift from Heaven, due to some unknown power, which they call magnetism, while others designate it by some peculiar word ending with bathing or cure. And it is astonishing how much credit they receive for their supposed genius by many of the most learned people. Should a lone fisherman forsake his boat, a blacksmith his anvil, or a shoemaker his shop and proclaim that he has made a wonderful discovery, that he is charged with magnetism and can cure all diseases, be he ever so ignorant and uncouth, he is likely to have, in a remarkably short time, a large clientele of educated gentlemen and refined ladies. It is not meant to imply that the previous occupation of these people is at all to their discredit, but, were they capable of giving a rational explanation of their methods, the halo of mystery would be removed and their prestige and patronage would suffer a sudden decline.

John Grosvenor, Esq., about a century ago, was professor of surgery, for many years, at Oxford. He practiced surgery only, but in the latter period of practice rendered himself justly celebrated throughout the kingdom, by the application of friction to diseased joints. He had first used it with success in a malady of his own, a morbid affliction of the knees, and by degrees its efficacy was so renowned that he was visited by patiants of the highest rank and respectability from the most distant parts. Mr. Grosvenor further says, in a book entitled "A full Account of the System of Friction," inflammation does not by any means contraindicate the use of massage in such cases, for in the words of Berghmann and Helleday, "Massage will simultaneously further and increase resorption, accelerate the circulation, relieve pain, and reduce elevated temperature."[3]

[2] Douglas Graham, "History of Massage."

MODERN ORIGIN OF MASSAGE.

By this I mean the scientific application of massage, according to a regular system. The system in use today and practiced by all the foremost massage operators, such as Metzger, Prof. Schüller, Douglas Graham, Weir Mitchell, etc., consists of four principal manipulations: Effleurage, friction, petrissage and tapotement. Prof. Robert Bartholow says "massage" is of Arabian origin, because there is a word in the Arabian language *mass*, which signifies to knead. He undoubtedly means the word, "massage" for the system of manipulations is of French origin, although some of the manipulations belonging to the system. were in use centuries ago, by other nations. All authorities on massage, today, agree that the word massage, is French, but originates undoubtedly from the Greek word, μασσω, meaning to beat, pound, or knead. Dr. Douglas Graham in the history of massage, *Med. Record, N. Y.* 1879, Vol. xvi, pp. 147–171, says: "To express these various maneuvers collectively, nearly all physicians, who take any interest in the matter, foreign as well as American, seem satisfied with the French word massage from the Greek *masso*, I knead or handle. Therefore the French should receive more credit than any other nation, for our present knowledge of massage, for they first made a scientific investigation of it and formed the various manipulations into a regular system."

In "Tracts on Massage No. III," translated from the German of Reibmayr, with notes by Benjamin Lee, 1887, is found the following: The history of massage, as demonstrated by Weiss (Bella Weiss Ueber Massage, etc., *Wiener Klinick*, 1889, Heft 11–12 and Ritterfeld (Ritterfeld, Confeld, Massage, Wiesbaden 1881), is very ancient. Allusions to it are found in the Chinese literature of a period, three thousand years before our era. Older still than the writings are their traditions, with reference to the subject. The civilized nations of antiquity employed it both as a therapeutic and as a hygienic measure among the Greeks and Romans.

During the middle ages, it vanished completely from the medical schools, receiving only an occasional recognition in connection with midwifery. It thus came into the hands of the laity, and this unfortunately, is sufficient ground, in the minds of many physicians, for glancing askance upon an agent of great value. The first nation to rediscover this therapeutic treasure and rescue it from oblivion was the French, "Fissot 1780" "Weibone" 1795, and Bonnet, 1845, have laid us under obligations in promoting its revival. But the writings of these men scarcely attracted a passing notice, even in their own country. To Dr. Metzger, of Amsterdam and his pupils Berghmann and Helleday, is due the credit of having reduced massage to a system founded upon the basis of numerous experiments and of earning for it the rep-

[3] For further reference to this matter see "report on treatment of sprains by massage, by Douglas Graham, M.D., in the N. Y. Med. Record, No. 353, 1877.

utation of being a truly reliable agent. His system possesses the great advantage of being as simple as it is clear, and should therefore, be accepted by all adherents of this method of practice.

It is true that massage has received so little attention from the medical profession that Prof. Th. Billroth of Vienna in 1875, and Dr. Wagner of Friedberg in 1876, stated that there were many physicians in Germany who had never heard of massage, and that it was then an every-day question as to what it meant, and some even supposing that Dr. Metzger of Amsterdam was the originator of it. In *Wiener Med. Wochenschrift*, No. 45, 1875, and *Berliner Klinische Wochenschrift*, No. 68, 12, 1876, after making some very commendatory remarks on massage, Professor Billroth concludes: And yet for sixty years prior to this, the word massage had found a place in the medical literature of France, and valuable articles had from time to time appeared on the subject. Dr. Weir Mitchell ("Graham Pract. Treat. on Massage, 1884") says: It is many years since I first saw massage used by a charlatan in a case of progressive paralysis. The temporary results he obtained were so remarkable that I soon began to learn what I could of its employment.

The modern application of massage.—This being of more interest to us and our patients, I will point out how massage is, or should be, applied; and in order to apply massage properly, it is necessary to know the indications and contraindications, the physiologic action upon the tissues, as the skin, muscular, nervous and circulatory systems, the special organs, the changes induced in pathologic or changed tissue, difference of action between active and passive exercises, also general hints and rules to be observed in giving massage, etc. There are certain movements of certain parts, which might be either active or passive, called Swedish movements or physical culture. These are often confounded or classified with massage, therefore I wish to call special attention to the fact that massage and Swedish movements should not be confounded, as they are distinct. Massage means treating the soft parts, muscles, organs, etc., only, while by Swedish movements is meant the movements of the joints, as flexion, extension, adduction, abduction, pronation, supination, traction, etc. Some operators practice massage and others practice movements exclusively. I have always used both for general treatment, spending five-sixths of the time on massage, but change according to indications and object of treatment. The Swede, Peter Link, 1776–1839, was the first to establish a scientific system of the various kinds of movements, and it is therefore called Swedish movements. There is as much or even more variation in the mode of giving these movements as there is in massage. Swedish movements may be given by machinery, as in the Zanderscbe Institute in Stockholm; there are also institutes in New York and in Battle Creek. The motive power here is generally steam. Various kinds of instruments may be used and the Swedish movements may be active as in gymnastics and Delsarte, or passive, as by machine or operator, or half active and half passive, that is, the patient may offer resistance while the operator makes the movements, or the operator offer resistance to movements made by the patient. Dr. Metzger of Wiesbaden divides massage into four principle manipulations.

MANIPULATIONS.

I. *Effleurage* (stroking).—A. With palm of one hand, used on small surfaces. B. With palms of both hands, used on large surfaces (is most generally used). C. With thumb or thumbs, on tendons or between muscles or small surfaces. D. With tips of fingers, on tendons or between muscles or small surfaces. Light stroking has a soothing influence on the system; heavy stroking has a stimulating influence on the superficial structures, increasing the arterial, venous and lymphatic circulation.

II. *Frictions* (firm circular, semicircular or to and fro motions).—A. With one hand, used on small surfaces. B. With both hands, used on large surfaces. C. With thumb or thumbs, used on small surfaces, as the face, below the eyes, hand around joints. D. With tips of fingers, used on small surfaces, as the face below the eyes, hand around joints. This manipulation reaches deeper than the former, to the subcutaneous connective tissue and fat overlying the muscles, its aim being to transform pathologically changed parts into a condition that will permit them to be incorporated into the healthy tissues by absorption by the veins and lymphatics.

III. *Pétrissage* (kneading or pinching).—A. With two thumbs, used to get the effect upon a certain small localized are- B. With thumb and fingers (see pinching). C. With two hands, used on large surfaces. (N. B. By pinching is meant the squeezing of the muscles between the fingers and the fleshy part of the palm.) The aim of this manipulation is to reach the separate muscles or groups of muscles, to reach as deep as possible, to cause circulatory, nutritive and alterative changes in the soft tissues within reach, muscles, tendons, organs, etc.

IV. *Tapotement* (tapping or percussing).—A. Clapping, used with palms of both hands. B. Hacking, used with ulnar border of hands. C. Pinctating or titillation, used with tips of fingers with a shoving motion. D. Beating, used with clenched hand, with the ulnar edge or with the knuckles. These manipulations are mainly used on muscular parts, as the back, back of legs, gluteal region, and well developed subjects in general.

I give these four principal manipulations, with subdivisions, because they are recognized and used by all the authorities of the day. Anyone attempting to give massage without a knowledge of these principles is unscientific and empirical. The reason why the four principal manipulations are applied in this order is, 1, it is well known that the circulation at the surface is not so active as that of the interior of the body, therefore in massage, effleurage is applied first in order to warm the surface, to stimulate the blood and lymph changes, to remove the old epithelial scales, that the pores and sebaceous glands may be freed from matter which causes obstruction. The frictions which are next applied reach a little deeper. The pétrissage goes below the skin and fat overlying the muscles and reaches the muscular structures and deep-lying organs. Tapotement imparts its stimulus to the deepest structures. Another reason why we should adhere to this table is, that we should have a system and it is, in my opinion, the best, this being the system, or the table of manipulations, recognized by all authorities on massage. But there are would-be authorities who have tables of their own. One author divides the manipulations of massage into: I, frictions; II, pressions; III percussions; and IV, movements. The first three he divides into moist and dry, the moist he calls unctions; they are used to apply a medicinal principle, as oils, liniments, ointments, balsams, pomades, etc. He says, in his book on massage, that unction does not, properly speaking, belong to massage. He also uses fancy names for some unimportant variations of the principal manipulations, such as attouchments, frolement, agacements, chatouillement, titillations, taxis, malaxation, froissement, foulage, etc. As regards his fourth division, movements, I think they should have been left out altogether, as movements and massage should not be classified together, as each is distinct, and the one may be used where the other is contraindicated.

The physiologic action of massage.—One of the first essentials is to make a diagnosis, and a diagnosis comprises a knowledge of the functional or pathologic changes that have taken place in the tissue. Before a remedy is selected to counteract this process, be this remedy a drug, diet, bath, or mechanical, therapeutic or hygienic measure, it is absolutely necessary that the consultant, before he gives his advice, should possess a definite knowledge as regards the action of the remedy prescribed by him. Unless he possesses this knowledge, he will employ these measures in an unscientific way, not knowing what the results of his treatment will be. If you know the action of the remedy or measure you can recommend it where indicated, and warn against its use where contraindicated.

(To be continued.)

SELECTIONS.

Displacements of the Uterus.—Dr. Howard Kelly in a recent article in *American Journal of Medical Sciences*, December, 1896, states that backward displacements constitute one of the most important gynecologic questions of the day, for two reasons; first because of the frequency, and second, because the treatment is in an evolutionary stage. After a summary of the causes, symptoms and discarded older methods, he says: "The most efficient plans of modern treatment, where treatment is required, are purely surgical, attacking the displacement either through the vagina or abdomen, or through both avenues at once. The correct method of dealing with any given case of retrodisplacement will fall under one of the following heads: 1, cases in which no treatment is required; 2, the use of a pessary; 3, manual reposition and massage; 4, operation upon the vaginal outlet; 5, operation on uterus at the vaginal vault; 6, short ening the round ligaments; 7, a suspensory abdominal operation or ventrofixation; 8, an operation upon the vaginal outlet and a suspensory operation combined."

No treatment is advised where the flexion is the discovery of accidental examination, or where the patient's distress is purely mental. On the use of the pessary he contends that its use in retroversions and retroflexions rarely effects a cure, in spite of the numerous statements to the contrary, that it is often useful in relieving local symptoms of the displacement, as a rule not by correcting the displacement but by checking the tendency to still greater displacement. The only pessaries he finds use for are the Hodge and frequently the Mundé with a thick posterior bar. The large pessaries, horse-pessaries, are to be absolutely rejected, as also all soft-rubber pessaries. Processes for treatment under the headings of "Manual reposition and massage" and "the vaginal operation for retroflexion" are then followed by an interesting account of his method in treatment of ventrofixation or suspension of the uterus, which he has applied on two hundred cases in the Johns Hopkins Hospital between October, 1889, and October, 1896. In no case has there been a death in any way connected with the operation, and no case of hernia or interference with the functions of the bladder has been reported. After carefully preparing the selected patient the operation is performed as follows: "An incision 3 to 4 cm. long is made just above the symphysis pubis, in cases in which the abdominal walls are thin or of medium thickness. . . . The peritoneum is opened the full length of the skin-incision, and caught at once on both sides with forceps and drawn outward. One or two fingers are now introduced through the incision and the fundus of the uterus caught and raised into anteflexion. I invariably use as a suture material for suspending the uterus, a medium-sized silk about a half millimeter in diameter. . . . One side of the incision is lifted, exposing the peritoneal surface of the anterior abdominal wall. The movable peritoneum and subperitoneal tissues are then transfixed 1 or 2 cm. away from the lower angle of the incision. The tissue taken in is about 1 cm. in width and 2 or 3 mm. in depth; the same suture is passed through the posterior face of the uterus 1 or 2 cm. back of the fundus, and finally brought out through the peritoneum and subperitoneal tissue on opposite of abdominal wall at a point corresponding to that of entrance. When the suture is tied it brings the uterus up snugly against the anterior abdominal wall in anteflexion. Another suspensory suture is passed like the first, but about 1 cm. higher up on the abdominal wall and half a cm. below it on the posterior surface of the uterus to hold the uterus in permanent anteposition. This is tied and the abdominal wound closed by sewing up the peritoneum with a catgut suture, then drawing the fascia together with silver wire mattress-sutures, finally closing the superficial fat and skin also with catgut sutures."

Treatment of backward displacements by an operation upon the vaginal outlet and a suspensory operation combined is given. In his recapitulation of the subject he says: "My conclusion in the whole matter would be that operative measures are only to be resorted to for the relief of retroflexion in those cases in which there is good reason to believe that the displacement seriously interferes with the patient's health and comfort. Then if the case is one calling for operation in a woman who has borne children, first look well to the vaginal outlet, and restore it if it is broken down. The Alexander operation, as performed by Edebohls will yield excellent results; my personal preference is to deal directly with the retroflexed body of the uterus by a suspensory operation."

Fresh Air Cure for Consumptive Children.—A most interesting charity has been carried on in France for several years known as the "Fresh Air Cure for Consumptive Children." Two hospitals for this purpose are located one at Ormisson and the other at Villiers-sur-Marne. The medical men interested in this work consider it the most promising method yet employed in trying to reduce the rate of mortality from consumption in France, which was becoming fearfully prevalent, the death rate reaching in some cities (Paris, Havre and Rouen) almost 80 per cent.

We quote from a recent report of the work by Dr. Blache; he says: Medicine forms no part of the treatment, except the occasional use of cod liver oil, in the cold season. The work of cure is left, therefore, entirely to fresh air and to the hygienic living of the patients. With the exception of a very few cases where persistent fever keeps them in bed during the first part of their stay at the hospital, all the patients are obliged to follow the regular system of living. They rise early, bathe well, are dressed all in linen garments loosely fitted. Twice a week unless otherwise ordered by the physician, each patient is bathed and vigorously rubbed by an attendant. After the toilet, the patients eat a light breakfast; this is insisted upon for each child, for suitable and regular meals have proved most necessary in aiding the treatment. After breakfast, the children are sent into the garden, the park, or covered playground, where they enjoy games and exercises varying with the seasons. The most serious cases are kept indoors, lying in reclining chairs, well wrapped in warm coverings, and breathing the fresh air admitted to the room. Except for the two principal meals of the day, the entire time is passed in the open air, and the rooms are also ventilated with the greatest possible amount of fresh air. This out-of-door program has been strictly followed since 1890, in all seasons of the year without any difficulty. As to the amount of nourishment taken by the little patients, it is of course rather difficult to give an exact reckoning, but the following table is as nearly correct as is possible.

For the two principal meals of the day:

Soups	
Bread	150–200 grams
Meat	125–150 grams
Vegetables and fruits	4–7 deciliters
Wines	¼ liter

The early breakfast consists of porridge, coffee or chocolate, and the lunch of bread and milk. Considering the youth of the patients and the lack of appetite characteristic of consumption, this is a relatively high average.

Results.—Each year the condition of the patients is set forth in a report to the medical committee of the institution. For five years, or since its beginning, these reports have without the least variation shown the most satisfactory results, surpassing even the hopes entertained by its founders.

The yearly average of cases treated.	109
Number of cures	47.71 per cent.
Number improved.	40.29 per cent.
Number unchanged.	8.79 per cent.
Number of chronic or cachectic . .	4.59 per cent.
Number of deaths.	3.44 per cent.

We have sought to give some explanation for these figures, which we must confess are surprising. The results have been uniform and much more favorable than we had the right to hope for. It is evident that the results arise from special conditions. All the patients admitted are proved to be afflicted with the disease, but we are careful to prevent as much as possible the admittance of patients in whom the disease is far advanced or has become chronic. On the other hand, the majority of cases treated at our hospitals are brought there in the worst conditions, from surroundings most wretched and unhealthful and with hereditary tendencies to disease; and it is exactly this miserable condition in which we find the children that permits them to derive the more benefit from the rational treatment of fresh air, good food and general hygiene, under which we place them. And this system of obligatory outdoor exercise, regular habits, cleanliness and rules of hygiene is the cause of the satisfactory results already shown. Moreover, the consumptive children readily accustom themselves to this life, and then neither the cold of winter nor the heat of summer seems to affect them.

In closing his report, Dr. Blache adds: "We fear that we may be considered too optimistic, but we are anxious to prove as soon as possible the certainty that consumption is eminently a curable disease and curable in infancy. We will say a disease more easily cured than many others, since its cure requires, in a word, only a persevering, regular and systematic application of a special, well understood hygiene."—Translated from the *Journal d'Hygiène* by M. R. B.

PRACTICAL NOTES.

Cathode Rays in the Diagnosis of Pleurisy.—Burchard states that the cathode ray may be destined to render as great services to internal medicine as to surgery. He has already found it a most valuable aid in diagnosing the effusion in pleurisy, as it enables the entire contents of the thorax to be seen in their correct proportions at a glance.—*Semaine Méd.*, December 9.

Experimental Appendicitis.—All attempts to produce appendicitis by introducing a foreign substance into the appendix of rabbits have hitherto failed, as the foreign substances, shot, etc., were all tolerated perfectly, and expelled in the course of time. But with a piece of laminaria introduced which closed the opening, appendicitis followed in every case.—*Bulletin Méd.*, November 11.

Arsenic Combined with Thyroid Medication.—The *Nord Médical* of December 1, describes a case of goitre treated with the thyroid medication, which produced such disturbances in the circulation and neuralgic pains, that it was about to be abandoned, when arsenic was combined with it tentatively. At once all the accidents passed away and the thyroid medication was continued and even increased without their return, except when the arsenic was suspended. As soon as it was resumed they passed away again. The patient was entirely cured of all her symptoms in one month.

Pre existing Lesions in Fatal Cases of Diphtheria.—It was announced at the last Russian Medical Congress that in 150 necropsies of children who had died of diphtheria, tuberculous lesions were found in 39, and the same number of cases of nephritis. The two forms of lesions only coincided in 11. In 33 cases the nephritis had evidently been chronic. It was therefore stated that in the speaker's experience, 40 per cent. of the children who succumbed to diphtheria were already affected with some severe chronic disease.—*Presse Méd.* November 21.

Massarini's Improved Solution for the Hypodermic Treatment of Surgical Tuberculosis.—Neutral sterilized glycerin 40 grams, metallic iodin 1 gram, potassium iodid 5 grams, guaiacol 20 grams. For subcutaneous injections. The presence of guaiacol prevents pain in the injections and also the formation of abscesses. It is used in the same way as Durante's solution, which otherwise it resembles, but with a more powerful therapeutic effect.—*Semaine Méd.*, November 18.

Ear Suppositories.—Radlauer of Berlin makes suppositories for the ear of cocain, menthol, resorcin, cocoa butter and olive oil, which also contain a cotton wad to prevent the escape of the fluids as they dissolve. They are recommended highly by Lasser, as they are effectual and save the introduction of the various medicines separately. The patients can insert them themselves, if necessary to save time and trouble in clinics, etc. They are designed to heal inflammations, to soften accumulations of wax, to prepare the ear for operations, etc., and are made in two sizes, for children and adults.—*Therap. Woch.*, December 13.

Significance of Hernia in the Etiology of Gastro-intestinal Disorder.—Schutz impresses upon all the necessity of thorough and careful palpation of the entire abdomen in the case of obscure gastro-intestinal disturbances, and especially of all the typical hernial sites. In this way often the real cause of the trouble will be found, unsuspected hitherto, and proper treatment ensures recovery. At the same time he warns that it will not do to ascribe everything to a hernia, and thus overlook possibly the cause elsewhere.—*St. Petersburg Med. Woch.*, September 26.

Biernacki's Ulnar Symptom in Mental Disease.—Hess urges all to coöperate in determining the importance of this sign in mental disease and paralysis. So far 417 tabetics and paralytics have been tested for it and 66.9 per cent. found to be without sensation or reaction when the ulnar nerve is pressed at the "crazy bone" point. Three hundred and fifty-four paralytics showed similar analgesia in 70 per cent. According to the sex, 73.7 per cent. of the men were analgetic and 43.7 per cent. of the women. Further investigation of the subject may be of great value in time, as if this sign proves what is expected, it will render material service in diagnosing doubtful cases.—*Deutsche Med. Woch.*, December 17.

Double Pneumonia with Hypothermia and Thrush Treated with Cold Baths.—The patient was an insane, elderly woman. The temperature fell to 36.8 degrees C., with such marked adynamia that a fatal termination seemed imminent. Mouth and gums were covered with thrush. Three baths in twenty-four hours, at 25 and 22 degrees C., were administered in the hope of stimulating the vital energies, lasting ten minutes each, nine baths in all. The improvement was perceptible the first day, and all the grave symptoms disappeared during the third day, when the pneumonia was in complete defervescence. The baths were discontinued as soon as the adynamia had passed away. The thrush was treated locally with boric solutions as usual.—Dr. Voisin in *Province Méd.* December 5.

Phosphuria in Diagnosis.—Investigation of the phosphates is indispensable in some diagnoses, which would be very difficult without the knowledge thus obtained. The diagnosis of hysteria for instance, is settled when after the attack, the proportions of the phosphates are inverted and the weight of the

phosphoric acid is normal or slightly diminished. On the other hand epilepsy causes an increase of the phosphates and also of the phosphoric acid. In the same way ascertaining the conditions of the phosphates enables the differential diagnosis between tuberculosis and incipient chlorosis to be established. In cases of phosphuria the surgeon should always reserve his prognosis even in the case of wounds and fractures and as well when intervention is being considered.—*Nord Médical*, December 1.

Hiccough Cured by Traction of the Tongue.—Professor Lepine of Lyons stated that he had arrested and cured a case of hiccough of four days' standing by drawing the tongue out and keeping it outside of the mouth for a few minutes. He does not know whether the procedure is of any practical utility in such cases, but theoretically it is of interest. It may be asked if rhythmic tractions of the tongue excite the respiratory center, as they do in restoring respiration in cases of asphyxia, how can they inhibit this center, as in the case observed? This apparent contradiction is explained by some experiments made by Professor Lepine in 1876, showing that the result of excitation depends, in the greatest part, on the state of the nervous apparatus concerned; so that, while excitation of the nerves at the base of the tongue will excite the respiratory center when this is paralyzed, similar excitation will depress it if it is in a state of exaggerated excitability.—*Universal Medical Journal.*

Spontaneous and Artificial Evacuation of the Stomach.—The phonendoscope is rendering many services to science, as expected (described in the JOURNAL, page 490, Vol. XXVI). The latest is a contribution to our knowledge of the evacuation of the stomach. J. C. Roux has found with it that the food taken into the stomach remains at the same level during the entire period of digestion, viz., from three and a half to four hours. The limits of the stomach remain the same during this time, except the lesser curvature and the pyloric region, which gradually tend toward the right. At the end of three and a half to four hours after the meal, the evacuation of the food matters occurs "brusquely and all at once." He also has established the fact that this sudden evacuation of the contents of the stomach can be produced artificially at any moment during the period of digestion by administering to the subject a small quantity of a concentrated solution of peptone. This fact is interesting as it shows that the duration of the period of gastric digestion can be regulated at will.—*Bulletin Médical*, December 2.

Successful Treatment of Saturnine Encephalopathy by Lumbar Puncture.—Quincke's lumbar punction has been principally used for diagnostic purposes, but Seegelken reports a grave case of lead poisoning completely cured by it in the *Münch. Med. Woch.* No. 47. About 60 c.cm of the spinal fluid was withdrawn, at first clear and then becoming turbid. It was alkaline, with a density of 1008, and showed in the microscope some leucocytes and endothelial cells. The part of the fluid that was limpid is supposed to have been derived from the medullary region, still unaffected by the disease, while the remainder came from the cerebral region, altered by the effects of the intoxication. The patient was kept under observation for weeks and showed no return of the coma, clonic spasms, etc., nor of any of the symptoms.—*Bulletin Méd.* December 2.

Helminthiasis.—Cima states that 46 per cent. of seventy-three children in his care for diverse diseases were found infested with helminths, twenty-eight had the trichocephalus; twenty-two ascarides; four the tenia nana; three the oxyuris, and one the tenia medio-canellata. Several were affected with nervous troubles, such as chorea, which were cured with exclusive treatment with vermifuges. The four children with the tenia nana presented a strange combination of symptoms; pains, a peculiar gait, ataxic and choreic, with paresis of the left limb. These symptoms all passed away with redoubled vermifuge treatment. They may have been due to excitation of the gastric plexus. Careful search was made for Charcot's crystals, which Leichtenstern considers a pathognomonic sign of helminthiasis, but they were found only seven times in all the ten microscopic preparations made of the feces in each case. They were found only in mucous dejecta streaked with blood, which leads him to consider them analogous to the crystals found in other mucous secretions, nasal, bronchial and spermatic.—*Bulletin Méd.*, December 16.

Ihle's Method of Suturing the Abdominal Walls.—Ihle has been using the following method since October, 1894, with perfect success even in the most obese cases: A curved needle with a strong thread is passed through the abdominal wall a few centimeters to one side of the wound, through the skin and subcutaneous fat, and brought out through the wound between the layers of fat and muscular tissue. The needle is then inserted in the other corresponding side of the wound, between similar layers of fat and muscular tissue, and curving downward is passed through the muscular layers into the abdominal cavity, thus inclosing the peritoneum at the edge of the wound. When it appears in the abdominal cavity it is carried to the opposite side and the same process is repeated inversely, passing it through first the peritoneum and then the muscular layers, to emerge at the edge of the wound between the layers of fat and muscle. It is then passed across to the opposite side and passed in the same way into the tissues between the fat and muscular layers, emerging outside through the subcutaneous fat and skin. Before the threads are tied they are pulled tight laterally, to make the coaptation of the low-lying muscles and fascia complete.—*Cbl. f. Chir.*, December 5.

Necessity of Operating for Incontinence of Urine in Commencing Prolapsus.—Very few consider it necessary to operate for incontinence of urine in these cases, as the larger operation soon required is supposed to include this. But Boursier stated in the November *Archives Clin. de Bordeaux*, that this is erroneous, and that the incontinence frequently persists after anterior or posterior colporrhaphy. He treats it at once with a combination of Duret's process (incurvation of the axis of the urethra, elevation of the meatus and lengthening the posterior wall), and Gersuny's torsion of the urethra. He and Pousson have been successful with this, while in other cases treated merely with the colporrhaphy and colpoperineorrhaphy the incontinence continued. He first inserts a bougie into the urethra, and circumscribes the meatus by a circular incision .5 cm. from the orifice. The canal is then dissected about 1.5 cm., after which the tissues of the vestibule are incised vertically to the base of the clitoris. The bougie is then withdrawn and the dissected portion of the canal is twisted one-half of its circumference on its axis, and drawn upward and forward, when it is fastened with a series of stitches in the upper angle of the vertical incision. The rest of the wound is then closed with a few catgut stitches.

Strangulation of Twisted Intestine after Extirpation of Carcinoma Cecl.—An instructive case is described at length in the *Cbl. f. Chir.* of December 5, in which a fortnight after resection of the cecum and ascending colon (Helferich), the patient returned with acute ileus, fecal vomiting, pains, etc. A second operation showed that the small intestine that had been implanted in the colon had slipped through the space left by the previous operation between the free edge of the mesenterium and the stump of the colon, and had become twisted on its axis, closing the lumen completely, with adherences to adjoining loops, requiring a two hour operation to make things right again and impressing upon Helferich the necessity of suturing these parts together henceforth, so that no space will be left. It is a difficult thing to do, and in some cases can only be accomplished by suturing a piece of the omentum into the space if

the resection has been very extensive. In another case since, he was able to close the entire mesenteric slit by a direct suture, and in addition he fastened the side surface of the mesenterium of the part of the small intestine leading away from the colon, to the retro-peritoneal surface of the wound in such a way that this portion of the small intestine took the place of the extirpated colon. Small tampon on the intestinal suture, drainage toward the rear.

Catarrh and Whooping Cough Treated by Formalin.—Following upon the use of formalin in tuberculosis of the larynx by Dr. Solis-Cohen and others, the remedy has been recommended in cases of influenza and catarrh. Dr. Starenbagen was probably the first to employ inhalation of formalin vapor for the latter trouble; he cured himself of bronchial catarrh. Then Dr. Gregner experimented with both inhalations and solutions, as gargles or lotions, and found that some slight irritant action attended the use of inhalations from dilute solutions. This irritation was soon overcome, while gargling could be done with a one-half per cent. (or even 1 per cent.) solution without discomfort. The London *Therapist*, December 15, adds a reference to improvements that are being made in the administration of formalin and paraform in cases of respiratory affections, as follows: The most recent contribution to the therapeutic employment of formalin in the treatment of catarrh and other allied diseases of the respiratory tract, was made by Dr. J. Lardner Green, at a meeting of the Southern Branch of the British Medical Association, held in Salisbury on November 25. This paper it is hoped will shortly be published *in extenso*. The author gave an account of the favorable result he had obtained from the use of formalin vapors, and suggested its employment not only in catarrh but also in cases of pneumonia, bronchitis, etc. With a view to the more extended employment of formalin vapors in this direction by medical men, it is necessary that a convenient and portable means of generating the vapors should be available. Just at the right moment, therefore, it has been discovered that the solid inert form of formic aldehyde known as paraform, may be volatilised and polymerised at a low temperature, giving off active formalin vapors by the employment of suitable apparatus, by means of which a current of air and water vapor is directed over the surface of the paraform. The *Therapist* further alludes to the experience of Dr. Hinman in an outbreak of whooping cough that occurred in an orphanage. The patients were all confined in one ward with closed doors and windows, in which a 1 per cent. formalin solution was freely sprayed twice a day, and also during the night. The immediate result of this treatment was an abatement of the paroxysms of coughing both in virulence and frequency, whilst there was a gradual but marked improvement, and all dangerous symptoms disappeared comparatively quickly.

Urticaria of the Respiratory Passages.—The *British Medical Journal* quotes Delbrel as having treated and collated numerous cases of this affection, and states that from his research and experience, he has come to the conclusion that there are two types of urticaria affecting the respiratory organs: 1, in certain cases the cutaneous eruption appears first, and is followed by respiratory trouble; 2, in others the respiratory symptoms first appear, to be followed later by the eruption, and it is in this latter that the greatest difficulties of diagnosis and the greatest danger to the patient may arise. In many instances the urticarial affection so closely resembles other respiratory disorders that in the absence of any cutaneous condition diagnosis may be almost impossible, and it may even happen that the only manifestation of the disease is that affecting the respiratory mucous membranes. Some cases simply resemble an attack of asthma; others manifest themselves by suffocative attacks with irritating, hacking cough, closely simulating edema of the glottis, for which they may be mistaken. In such cases a laryngoscopic examination may be of great use, though, unfortunately, it may fail, even in skilled hands, as it seems to cause increase in the symptoms. In the instances where it has been carried out, red, raised erythematous patches have been found in the posterior pharynx, and though it may be impossible to obtain a view of the eruption in the larynx or trachea, the existence of such patches in their neighborhood may be used. In the cases where the respiratory affection is severe the symptoms may be the most alarming. There is no regularity as to the time of their appearance after the ingestion of some article of diet, etc. The author states that severe cases not infrequently end fatally; others may last for periods varying from a few hours to several days, and the appearance of urticaria seems to be a favorable sign. He suggests that in acute cases with severe pulmonary symptoms and no cutaneous eruption brisk friction should be applied to the skin in order to induce its appearance.

Radical Treatment of Congenitally Malformed Anus.—Gangolphe in *Revue de Chirurgie* for April counsels the employment of peritoneal incision and enterorrhaphy in cases of preternatural anus. There are, he points out, two methods of dealing with this condition: In one the surgeon works from without inward in the immediate neighborhood of the opening and, after gradual dissection, exposes the two extremities of the divided intestine, and draws these outward; in the other the peritoneal cavity is opened by an incision made through the abdominal wall at some distance from the false anus. The author holds that the latter method possesses many advantages. It is rapid, and the surgeon, without dread of wounding any important organ, cuts directly into the abdominal cavity. It is sure, as the finger introduced into the abdomen can explore the structures in the immediate neighborhood of the false anus, and can guide the scissors or other cutting instruments by which the perforated portion of intestine is set free. It permits free exposure and complete isolation of the structures submitted to operation. The risks of infection are diminished, and the manipulations of the surgeon facilitated by this free exposure of the perforated or divided portion of intestine. It is applicable to every case of false anus, and is likely to prove successful when the former method has failed. The author concludes with a description of his operative method, which with variations in detail to meet special circumstances, he has practiced with complete success in three instances. The first stage consists in making about the false anus an oval incision extending through sound skin and other layers of the abdominal wall as far as the peritoneum. This membrane is now incised at the upper wall so as to permit the introduction of the finger into the peritoneal cavity for the purpose of exploration. The extent of the adhesions of the intestine to the abdominal wall having been determined, the oval portion of abdominal wall formed by the first incision is set quite free, and the divided portion of the intestinal canal is freely exposed. The subsequent stage of the operation will depend on the size of the false anus and the extent of the intestinal adhesions. If the opening be small and involve only a portion of the circumference of the gut, it may be closed by lateral suture after excision of surrounding callous tissue. If there be much loss of intestinal structure, and a spur has formed at the seat of the false anus, the author would set free both ends of the intestine, and then bring them together either by circular suture or by Murphy's button. The latter method, he states, is indicated in any case in which the patient can not tolerate a long operation, and when the surgeon is inexperienced in the application of intestinal sutures, or is operating under unfavorable conditions. In cases of extensive adhesions it would be necessary, after apposition by suture or button at the ends of the intestine, to separate the loops of intestine from one another and from the abdominal wall by very careful dissection, and after closure of the external wound to drain the seat of operation.

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It would greatly facilitate the prompt delivery of the JOURNAL to those members of the ASSOCIATION living in large cities, if they would kindly furnish this office with their street address in those cases where it is omitted from the wrapper of their JOURNAL, as we have been notified by the postmasters of the larger cities that second-class mail matter not having street address, would be placed in the general delivery to await call.

SATURDAY, JANUARY 9, 1897.

IDENTIFICATION OF CRIMINALS.

Under a title which may be rendered into English as "General Instructions for a system of Identification," Sr. JUAN VUCETICH, Chief of the Statistical and Anthropometric Identification Office of the Police of the Province of Buenos Aires, has published the second edition of a work on identification by scars and marks. The first edition was published in 1895. In its preface the author related the case of a criminal who was sentenced to confinement for ten years, but who escaped and was subsequently captured and tried for some fresh crime. The evidence was insufficient to convict and the man was discharged. An effort was made to detain him as an escaped convict, but the evidence on record failed to establish identity. Sr. VUCETICH believes that had his system been in use at the time this criminal could not have escaped identification. Its use, he considers, will be of immense advantage in detecting old offenders and particularly in the apprehension of deserters from the army and navy. His proposition was submitted to the Minister of the government and was by him approved and adopted as the official instructions for the use of the police of the province, to go into effect Jan. 1, 1896.

Sr. VUCETICH modestly states that his work is simply the application of the conclusions reached by BROCA, LOMBROSO, BERTILLON and others. The study of the works of these authors suggested the idea of identification by scars and marks and furnished him with most of his materials. But like all those who apply book knowledge in the elaboration of methods for practical work, his methods are too recondite. He has built up a system which requires careful study and an excellent memory to make use of the proper official terms to be used in a given case. The height of the individual appears to be the only measurement taken; but 145 illustrations are given showing the various points to be noted in connection with the contour of the face, the eyebrows, eyes, nose, mouth and ears. The surface of the body is divided into considerably more than a hundred regions and a long list of abbreviations and signs for indicating the character, size and location of marks and scars is given, with the result of building up an intricate system out of that which should have been kept as simple as possible. Directions are given for taking photographs and also for recording the digital impressions of each individual.

While disclaiming any title to originality in the system advocated and now officially adopted, its author takes credit on behalf of the Province of Buenos Aires for having been the first to apply a system which without being anthropometric has all the accuracy and precision of this system; but even this claim does not hold good in the light of a fuller knowledge of what has been accomplished elsewhere. A system of identification by scars and marks has been in use in the United States Army since 1889. The effort in our army has been to preserve the simplicity of the system and to avoid all tendency to elaboration of details. Instead of a tedious description in words requiring thought to ensure an accurate record and more thought to enable the reader of the record to realize the locality, size and general appearance of the scar or mark, the record of the United States Army may be made and read with precision by one who is ignorant of the name of the region on which the scar is situated. This is effected by placing a representation of the mark to be described on the appropriate part of an outline figure of the person. No results have yet been announced in Buenos Aires because no identification can be made until the files of the identification bureau contain a number of cards or descriptions, and time is required to effect this. Since the system was established by the Surgeon General's office of the United States Army, 785 identifications have been made and there are now on file the cards of over 13,000 men of undesirable character, each of whom can be identified should he present himself for enlistment before a recruiting officer or should a call from other quarters be made for his identification.

THE CHEAPENING OF THE PROFESSION.

A recently published work on "The Mystery of Sleep," among other statements wise or otherwise, says that if the investigation of the mystery of sleep

were taken up with the same incentives and by the same class of minds as those now engaged in the study of electricity, it would be as clearly understood as is that agent at the present time. Of course this involves the assumption, based on very insufficient appreciation of the facts that we have at present a better knowledge of the nature and phenomena of electricity than we have of those of sleep, but the feature of the utterance that chiefly calls for notice is the implied assumption that a superior grade of intellect is engaged in the field of physical than of physiologic research, in short, the too common notion that the medical profession does not contain the highest type of intellect as compared with scientific workers in other special lines. When this notion is given expression it is often enough, it is true, associated, as occurs in this instance, with evidence of gross ignorance on the part of the utterer; but this does not altogether relieve the sting of the fact that it exists. There is no need of attempting to refute the error to medical men or to scientific workers generally; they know well enough already that the medical profession throughout the world has its full share of the greatest minds as it has always had, the only point to be considered here with any profit is why should the contrary idea exist to any extent whatever among the average intellects of the general public. We all like to be estimated at a full or at least a fair valuation; our philosophy does not usually reach the point of making us absolutely indifferent to public opinion even when we know it to be misled.

The real trouble seems to be in this matter that the medical profession is judged by its minimal average, while physicists and other scientists are only recognized above a certain high standard. The average practical electrician is not an especially accomplished man and is hardly recognized as a scientific worker; but the public regards one like EDISON or TESLA, who may be really only an unusually ingenious and successful practical mechanic, as an especially brilliant coryphæus in the world's scientific advance. On the other hand, all doctors are too often counted alike, from the painstaking physiologic investigator down to the advertising peddler of patent pills, and this even by the literary magnates of our Eastern centers of culture. To paraphrase Mr. BIGELOW'S dictum properly one would say that if the mysteries of sleep were studied by especially active minded practical mechanical geniuses and business men, with the facility of adapting whatever facts scientific research can give to economic uses, and with the intent to appropriate by patent all useful results for personal profit, they would become as much revealed as he supposes those of electricity to be. It can be safely assumed that the author did not allude to the purely scientific investigators who study the physical agencies for science's sake alone, or he would not have shown the lack of knowledge as to the work of the physiologists who have traced the phenomena back to the vital processes and have given us far more rational theories of sleep than we can be said to possess in regard to the intimate nature of electricity. As to the practical points involved, they have been solved more or less fully long since by mankind in general, and Mr. BIGELOW'S book finds no additional data of value to enlighten us.

The fact that such misapprehension can be shown by an eminent literary man in a work touching on a semi-medical theme, is enough to suggest to our profession the fact of the need of a better education of the public in this respect. It was not always the case that the medical profession was valued below any of the others; in the early history of this country doctors seem to have been rated among the best. The JOURNAL has already editorially called attention to the fact that in the first Continental Congress physicians were represented even out of proportion to their numbers in the general population. At the present time there are nearly a hundred thousand physicians in our country and over twenty thousand medical students, and the public estimation of the profession appears to have, in a measure, grown in an inverse ratio to its increase in numbers. We have cheapened ourselves by making ourselves too common, and the over-use of what seems to be regarded as the only legitimate mode of advertising, viz., connection with some sort of institution for making more physicians, is daily increasing the evil. A year or two ago there were counted fourteen medical colleges in one great center, today the number is said to be nineteen; perhaps next year it will be twenty or more. The advance sheets of the report of the United States Bureau of Education for 1894 and 1895 call attention to the fact, that while it took sixty years (between 1765 and 1826) to establish the first twelve medical schools in this country, half this number were started in one year, 1893, and if the estimated increase in Chicago is correct, this ratio is very rapidly increasing.

The medical profession is said to have led all the other so-called learned professions last year in the number of suicides of its members, a not very enviable distinction, but one that it may continue to hold if its members continue to increase with a correspondingly cheapened popular estimation. The reforms that are under way do not go far enough, or perhaps we should say that they are too slow in their action to materially mend matters. A four years' course and State examinations are excellent, but they must be made universal, and even when that is accomplished it will be years before we can realize fairly their benefits. In the meantime, at all events, it would seem worth while to call a halt in the present undue multiplication of medical colleges of every kind, if there is any way that this can be accomplished.

THE METOPIC SUTURE.

At birth the frontal bone consists of two halves, separated by the interfrontal or metopic suture. Toward the end of the first or the beginning of the second year, this suture begins to close from below upward. In cases of premature closure before birth, the suture closes both from above and below toward the middle, and a marked cranial deformity ensues, known as trigonocephaly. As the name indicates, the skull is of a triangular shape, with the apex in front, so that the forehead runs out into a very sharp point.

In the lower animals the frontal bone remains in two halves during life, but in the primates a single bone is the rule. Persistence of the frontal suture is known as metopism, and is found in various degrees. It may be, 1, entirely open; 2, open at both ends; 3, closed only at the lower end; 4, closed only at the upper end. Its frequency varies in different races, as shown by ANOUTCHINE'S statistics:

White race	11,459;	crania 8.2	per cent.
Mongolian	621;	" 5.1	"
American	1,191;	" 2.1	"
Malay	892;	" 1.9	"
Negro	959;	" 1.2	"

What is the cause of metopism? Has the process of synostosis never commenced, or has its course been arrested? As ANOUTCHINE'S figures show a marked preponderance of this condition in the higher races, many authors have considered that its presence is due to an increased size of the frontal lobes and a relative increase in the intellectual faculties. Thus PAPILLAULT ("La Suture Metopique," Paris, 1896), from comparison of a large series of crania of various races, sexes and ages, concludes that metopism is due to the influence of the brain, and is therefore an evidence of superior cerebral activity. "Metopism," says BROCA, "corresponds to a notable enlargement of the anterior cerebral fossa, coming on during childhood, either from the rapid development of the frontal lobes, or from slight hydrocephalus, traces of which can be found in other parts of the cranium." TOPINARD thinks hydrocephalus is the most probable cause. He adds, "No matter what is the mechanism producing it, is metopism a step toward perfection or a reversion, a condition foreshadowing the future, or a pathologic state? We have shown that cerebral hypertrophy leads to mania as well as to genius, and that the difference may be without a difference. Is not a double frontal bone a corollary, does it not indicate the effort of the encephalon to make a place for itself in the cranium, and being found more frequently in the higher races are they not paying too great tribute to the pathologic states resulting from it?

TOPINARD examined the crania of 361 insane persons and found the proportion of persistent metopic sutures very large (17.7 per cent.); SIMON (*Virchow's Archiv*, 1873, p. 576) found only 9.4 per cent. in 809 crania.

Attention may be here directed to the practical significance of this anomaly, viz., that in wounds of the median line exposing the skull, the possible occurrence of this metopic suture should be borne in mind, otherwise it may be mistaken for a fracture.

LORD KINNEAR.

The JOURNAL suggested in its editorial column (Oct. 24, 1896, p. 920), that as the season was approaching for the annual distribution of peerages in Great Britain, it would be a fitting time to recognize the learned profession of medicine by promoting one of its members to the peerage.

We are therefore pleased to chronicle the fact that Sir JOSEPH LISTER was created Lord KINNEAR December 31.

This material recognition can not be otherwise than gratifying to the medical profession throughout the world, for whatever we may think of rank or title, we must admit that the world sits in judgment, and that its decrees favor rank and station, as a means of distinction. Republics are alone ungrateful, and since the foundation of the world, have paid little reward to their citizens who have rendered services to the state or distinguished themselves as discoverers in any branch of science. True, France has still the "Legion of Honor," but that was transmitted from the first Empire, and can not be cited as disproving the rule. Ingratitude is the basest of all personal attributes, and a government should no more lay itself liable to this charge than an individual, and the educated citizen of the world, who looks upon the age he lives in without regard to political divisions, is naturally pleased that radicalism in the French Republic not only left the Legion of Honor untouched, but added a few medical life senators. The various orders of other countries, such as the Iron Cross of Prussia, the Victoria Cross, and the like, have been appreciated by all good men as above riches or political position, as a public certificate of honor natural to the man, of which the decoration is only the symbol.

The services to the profession and to mankind which have made the name of JOSEPH LISTER famous in the annals of his profession, and the recognition by his government a suitable one, may be briefly mentioned as follows: He was born in 1828 and at the age of 19 received the degree of B.A. at London University. In 1852 he received the M.B. degree from University College, London, with the scholarship and gold medal. In the same year he became Fellow of the Royal College of Surgeons, and at Edinburgh during the year following, his first original investigation was entitled "Observations on the contractile tissue of the iris." Among his other contributions to medical science are "Observations on the minute structure of involuntary muscle fiber," "On the early stages of inflammation," "Spontaneous gangrene from arteritis and

causes of coagulation of the blood in diseases of the blood vessels," "Preliminary account of an inquiry into the functions of the visceral nerves, with special reference to the so-called inhibitory system," "Observations on ligature of arteries on the antiseptic system," "Remarks on a case of compound dislocation of the ankle with other injuries, illustrating the antiseptic system of treatment," "On some cases illustrating the results of excision of the wrist for caries, treatment of deformity from contracted cicatrix, and antiseptic dressing under circumstances of difficulty, including amputation at the hip joint," "A further contribution to the natural history of bacteria and the germ theory of fermentative changes," "On the relations of microörganisms to disease," etc.

For several years he was lecturer on surgery in the Edinburgh Extra-academical School, and afterward elected Professor of Surgery in Glasgow University and surgeon to the Glasgow Royal Infirmary. Here it was that his investigations led him to formulate the principles of antiseptic surgery, which revolutionized this branch of medical science. He attended the International Medical Congress at Philadelphia in 1876.

Professor LISTER was awarded a medal by the Royal Society of London in 1880. He was created a baronet in December, 1883, and has received degrees from the Universities of Cambridge, Edinburgh and Glasgow.

THE PRESS AND QUACK ADVERTISEMENTS.

At the recent discussion of this question by the Chicago Physicians' Club the lay press entered what was practically a plea of confession and avoidance. In lieu of denunciations of medical abhorrence for mossgrown mendacity (which the "false and fraudulent advertising" of the quack has entailed for centuries), so common in the editorials of the newspapers, the newspaper representatives admitted abuses of the advertising columns, pleaded impossibility of censorship and denied the authority of the Code of the AMERICAN MEDICAL ASSOCIATION. One representative said that the policy of a newspaper must be dictated by the counting room. This, the other representative (who, when editor of a great Chicago newspaper, purged his advertising columns of massage shops and clairvoyants) refused to consider true. Even were this claim true, it must on the most ordinary business principles, as the medical representatives pointed out, exclude quack advertisements since, as was long ago shown by the *National Advertiser:*

> Exceedingly large advertisers tend to discourage the smaller ones and hence, while a certain amount of revenue can be obtained from any colossal advertiser, the diminution of receipts will be noticeable from the many minor advertisers who become overshadowed by the gigantic one. Many of the leading papers in the leading cities are publishing colossal advertisements of certain "advertising doctors." The aggregate amount expended by these "doctors" is very great and while it is probable that there may be enough weak, sickly and gullible men and women in America who will be induced, in their weakened condition, to pay a stipend each month to these charlatans, it can only be a question of time when both they and their methods must cease. Meanwhile the papers that are receiving large revenues from them are keeping out many good and legitimate advertisers whose aggregate revenues would probably exceed that of the sporadic "doctors." It would seem that shrewd publishers should be able to see these truths, see what the tendency must be, and see the inevitable outcome. Especially should publishers be able to see this in the fact that these so-called physicians pose as philanthropists. In their announcements they say they "make no secret of the fact that they aim to be in every sense the people's physicians and that they are more anxious for the approval and respect of the public than for the financial returns of their work. The practice of medicine was not a necessity to them. They were men of independent means before they placed a line in the columns of these newspapers and they had no need to look to the returns of their work for either livelihood or profit." Such disinterested, such high minded philanthropy has not been known to the world since the days of HOWARD and it is to be hoped that publishers may understand and profit by the lesson it conveys.

The press is now dominated by display advertisers who, having driven small advertisers from the field, pool their issues and dictate advertising rates. The quacks have not yet formed a "trust," but the indications are that the big quack will eat up the little one, thus rendering advertising impossible, except to incorporate quacks who can induce banks to loan on their stock. Even this is fraught with danger to quack and bank alike, as witness the fate of a Nebraska rupture-cure company. The head of this induced an Omaha national bank to invest in his stock and give itself as financial and medical reference. Through the credit of the bank, enormous advertisements were inserted in leading newspapers. The bank was forced to suspend lately. The "Napoleon of finance" who headed the rupture-cure company has just been sentenced in the Omaha federal court for fraud and misrepresentation. The advertising bills are still unpaid. Ordinary business sagacity would therefore dictate exclusion of mendacious quack advertisements from newspapers.

A REVEREND ALIENIST.

The daily press informs us that a certain clergyman by the name of BOYD, residing in St. Louis takes issue with the well-known alienist, Dr. CHARLES H. HUGHES of that city as follows:

> Upon what authority is it charged that JOSEPH B. MCCULLAGH committed suicide! Upon the authority of only one man, Dr. C. H. HUGHES, a neurologist, a man whose business it is to prove all men insane, to prove that we are insane. Shall we accept such testimony as this? Most assuredly not. I am surprised that this man should stand up as a public prosecutor and try to prove a crime against so well-known and so great and intellectual man as our friend. It is surprising to me that a man of the character of this neurologist would have the audacity to accept the position of public prosecutor, such as he has done, and I trust and believe that no one who has heard these facts will ever believe that Mr. MCCULLAGH's death was due to suicide. To my mind it was just as surely an accident as any accident that ever occurred.
>
> The great editor is dead. He is unable to make any defense, and it ill becomes us under such circumstances to charge upon him what is considered almost a crime.

According to Mr. BOYD insanity is a crime, and Dr. HUGHES a "prosecutor."

The truth is that Mr. McCULLAGH had for some months been very ill with insomnia and nervous prostration, and if we mistake not, under the care of Dr. HUGHES. We do not know whether our colleague at any time pronounced his patient insane, but at this distance it would seem appropriate to believe the opinion of the attending physician rather than that of a gentleman who seems to have exercised his constitutional right of free speech, with less regard for accuracy than for the ears in his immediate vicinity.

CORRESPONDENCE.

Medical Practice in Cuba.

PHILADELPHIA, Dec. 30, 1896.

To the Editor:—It may interest your readers to know how much a graduate of our medical schools has to pay in Cuba for the right to practice medicine.

A graduate of the University of Pennsylvania was practicing in a town of about 1,000 inhabitants, and in a municipal district of about 14,000.

To begin with, he had to pay $494 for a license to practice. This was given after an examination in all the branches of the medical curriculum of the University of Havana. After such examination he had the option to take the degree from that University, but this would have cost him $1,500. The license must be renewed every six years, without an examination, but with a renewal of the payment.

Beside this, the Doctor paid $10.60 quarterly in professional taxes to the state, and $2.50 half yearly to the city. He had further to provide himself with personal papers—a sort of ticket of leave system—which in the case of a practicing physician, cost $10.60 annually.

Our country Doctor had to pay therefore the sum of $140.45 annually. An examination of the Spanish Cuban budget will show how this money was expended. Our Doctor paid:

To general obligations, charges of the debt, etc	$ 66.95.
" public worship and justice	4.65.
" army and navy	41.15.
" treasury department	3.74.
" interior department	20.91.
" public improvements, including education	3.05.
Total	$140.45.

It will be seen that our friend was paying 77 per cent. of his taxes toward securing two inestimable blessings: an army and navy for his own subjugation, and the payment of a debt contracted by Spain for the subjugation of the same worthy Doctor and his fellow natives.

JOHN GUITÉRAS, M.D.

Locum Tenens.

DECEMBER 26, 1896.

To the Editor:—Please answer the following question: Dr. A. was engaged to attend Mrs. Blank in confinement. When labor came on the husband telephoned for the Doctor, but received a reply from the residence that he was absent from town for the night. The husband then called Dr. B., who responded and delivered the woman. The next morning Dr. B. called on Dr. A. and told him that Mrs. Blank had been confined during his absence. Which physician should properly look after the case during the puerperium? The two physicians are the best of friends and enjoy the easiest professional intercourse.

Respectfully, M.D.

Answer: Dr. A. should attend the case. Dr. B. was simply *locum tenens*.

PUBLIC HEALTH.

Anti-depopulation Congress.—The subjects discussed at this congress, held in Paris in December, were: To increase the nuptialty and natality, protection of maternity, protection of infants and children of all ages and of adults, and means to secure the adoption of the resolutions of the congress.—*Progrès Médical*, December 5.

Prevalence of Syphilis in Russia.—A congress for the study of prophylactic measures against syphilis will meet in Russia before long, and preliminary investigations are now being conducted on a large scale. According to the *Annales de Derm. et de Syph.*, this disease is assuming such proportions in that country that in certain regions the number of syphilitics is no longer counted, merely the non-syphilitics.

Cremation or Removal of Garbage by Railroad.—The committee appointed by the Paris Académie de Médecine to investigate this question, report in favor of the removal and distribution of the garbage of Paris by railroad, stating in conclusion that the 1,000,000 cubic meters of refuse spread on poor land would produce nearly 100,000 tons of cereals and meat, milk and wool from 40,000 to 50,000 head of animals. To incinerate this 1,000,000 tons would cost 3,500,000 francs, aside from all questions of hygiene. This conclusion is the result of eleven years' study of the subject.—*Bull.*, November 3.

Alcoholism and Crime.—The statistics of the Belgian prison at Louvain show once again the importance of alcohol as a factor in crime. Out of 2,826 criminals received there during 1874 to 1895, drunkenness at the time of the crime was proved in 12.4 per cent. of the total cases; in 40.7 per cent. of those under life sentence, and in 43.1 per cent. of those condemned to death. Habitual drunkenness was proved in 44.7 of the total number received; in 54.6 per cent. of those under life sentence, and in 60 per cent. of those condemned to death. The importance of alcohol as a factor in criminality thus increases with the gravity of the crime; not so much transient drunkenness as habitual alcoholism. The tabulated statistics are given in the *Journal de Méd. de Paris* of December 6.

Sanitary Regulations of Hungary.—The *Deutsche Med. Woch.* December 17, states that the sanitary regulations of Hungary are only surpassed by those of England, and in some particulars, are superior to the English. Medical care and assistance is assured to all by their systems of community doctors, and fines are enforced for neglect to summon a physician when a child under seven is ill, and also for administering opiates, etc., to children without a physician's prescription. It is one of the duties of the Minister of the Interior to send an expert to localities where the death rate is higher than usual, even when there is no epidemic, to ascertain and remedy the causes. All manufacturing establishments are compelled to keep appliances and dressings for wounds and to arrest hemorrhage constantly in readiness. Pensions are bestowed upon the widows and orphans of physicians, surgeons and nurses who die in the performance of their duty. Syphilitics are received into military hospitals, if there are none others convenient. The regulations in regard to epidemics, midwives, charlatanism, and sanitary homes for the poor are especially stringent. With it all, however, the death rate was 32.5 per thousand in 1890, and 29.4 in 1895. In Prussia the same years it was 24.5 and 21.8.

Immunizing Against Diphtheria.—The frequency of diphtheria contagion among the numbers of children received at the great Berlin hospital, the Charité, for other diseases, induced those in charge to experiment with the diphtheria immunizing antitoxin on a large scale. The results are published in the *Jahrbuch der Kind.* No. 1, in which it is announced that every child received into the hospital since the beginning of 1896, has received a preventive dose of 200 to 250 immunizing units, and

only one case of diphtheria has occurred among them during that time, and this case was the one child exempted from the immunizing on account of severe articular rheumatism. Previous to these attempts, one-half of the children who died in the measles ward, succumbed to croup. Since they have been immunized in this way, the mortality has been reduced one-half, and no cases of consecutive croup have appeared among the 99 cases received. Löhr states his conviction that the croup after measles is nothing but a secondary diphtheria, as he has always found diphtheria bacilli in the fibrinous patches. Similar favorable results were obtained in the scarlet fever pavilion. In spite of the fact that the 460 children received into the hospital were often in the gravest condition from other diseases, no threatening after-consequences were observed in any case. Exanthema appeared in 4.34 per cent. of the cases, but never anything more serious, even in the most advanced stages of other diseases. The *Deutsche Med. Woch.*, December 17, regards Löhr's communication as a distinct advance in this line, and urges all to read and ponder his report, which is sure to overcome the prejudices still held by many against this life-saving measure.

The Stamping-out of Typhoid at Wheeling, W. Va.—Confirmation of the good news that had reached us through other channels of the improved conditions at Wheeling, is well set forth in an article by Dr. C. F. Ulrich, in the *Dietetic Gazette*, December. The writer accords to the late Dr. J. E. Reeves an important part in the fight for a purer water supply that was begun about twenty years ago, when typhoid fever had a prevalence almost epidemic in gravity. In his first year's practice, the writer had in the same month, twenty-two cases of fever within two blocks' radius of his office. And now behold the difference; he has not had a case for two years and over! There was a time when he and his fellow physicians had more cases of fever than of all the other serious diseases "put together." From 1873 to 1893 there was an average annual mortality by typhoid of 47. In 1894, just after the opening of an improved water supply, the typhoid deaths were 16; in 1895, 10; and in nine months of 1896, 16. The first public result of the agitation by Dr. Reeves and others was the establishment of a crematory for the destruction of garbage and night soil. Next, the water plant was moved to a point higher up the Ohio River, a mile above the point of discharge of the Wheeling sewers. This change was effected and the new pumps set in motion in January, 1894. This improvement is not to be regarded as an ideal reform, since there are many cities and towns on the river above Wheeling that pour fourth their sewage into that stream. Dr. Ulrich continues as follows: "But there is a sort of purification taking place in the water as it flows down; the sediment being deposited in the bottom and sides of the stream, carrying with it a large proportion of the malignant bacteria that are entangled with the solid material of the water; whereas the water that flows past the upper end of the city as far as Eighth Street, receiving the outpourings of the sewers and surface-drainage of the First Ward, could not possibly be thus purified. This territory has in it the old hospital, and this, until a few years ago, was the only hospital the city possessed. Within five or six years past another public hospital and three private institutions of that character have been established in the city, so located, that even before the removal of the pumping-station, their waste material would not have been within reach of the intake of the pumps. Now we can make a comparison between the state of things then and now. Then we had the garbage dumped into the streets and alleys, the privy-vaults overflowing, or their contents taken out and emptied into the river; all the filth from the dwellings, stables and out houses of one-eighth of the city, including the Wheeling Hospital, which then did all the work of the city, washed into the river and immediately pumped into the reservoir, whence it was distributed to all the dwellings as a pleasant beverage. Now, we have the garbage and the human excreta destroyed by fire, the intake of the water-works located a mile above the upper end of the city, fifteen miles below the next town on our side of the river, and nine miles below the nearest village on the other side. Then, nobody paid any attention to the sanitary condition of the water, fearlessly drinking it as it issued from the hydrant. Now, many of our families possess filters in their dwellings; others use artificial ice, manufactured from distilled water, melting it as required for use. Again, others, who can not afford these luxuries, boil a sufficient quantity of water every morning to last for the day."

Composition of two Deposits in Water Pipes.—In the *Analyst*, July, Dr. Voelcker, before the Society of Public Analysts of London, reported, first, a case showing how the action of a soft water on galvanized iron pipe may give rise to serious results. We had lately occasion to examine a deposit which had formed in a pipe connected with the hot water apparatus of a private house in the country. The pipe in question was completely blocked up with a white deposit, and the owner of the house was very disappointed to find that the water which we had previously reported to be a very soft and pure one, and suitable for general domestic use had, after a comparatively short time, given rise to a deposit in the hot water pipes. The owner was under the impression that the deposit was due to lime. Upon analysing the material we found that it contained no lime, but consisted almost entirely of a basic carbonate of zinc, together with oxid of zinc. On inquiry we found that the water was lifted by a ram to the height of 300 feet, along about half a mile of galvanized iron pipes. These appear to have been very rapidly attacked by the water, the zinc being dissolved and deposited in the pipes at those points where the water was very hot, and also in the boiler and hot water cylinder. Dr. Voelcker said that upon first inspecting the pipe in question, he naturally thought that the deposit was of the ordinary nature, viz., carbonate of lime. His brother (Mr. E. W. Voelcker), however, noticed that it was particularly soft; this led to a further examination of the deposit, when it was found that there was no lime at all in it, but that it consisted mainly of carbonate of zinc. On referring back to the analysis of the water, which had been made some time previously, it was found that the water was distinctly soft, it containing only about six grains of total solids per gallon. The portions of the pipes upon which the deposit had mostly formed were those nearest the boiler. The deposit contained something like 64 per cent. of basic carbonate, and some excess of oxid of zinc, which might have been due to change in the basic carbonate consequent on the heating. The chlorin amounted to about one grain per gallon. As regarded the composition of the carbonate, there certainly was a large quantity of oxid of zinc present in the deposit, but ordinary carbonate of zinc would, without doubt, have been decomposed by the high temperature and pressure to which the deposit had in all probability been subjected. The water was slightly acid. It was taken from a Welsh mountain stream, and contained very little organic matter. The oxygen absorbed was a mere trifle, and the water was not colored like a peaty water would be. The second instance shows the action upon iron of a very hard water containing a good deal of sulphate of lime and organic matter. The well water in question contained over 40 grains per gallon of total solids. It was noticed that on the pump-rods in the well a black scale was formed, and in the stand-pipe there was a considerable amount of deposit. The analysis of the scale and of the deposit revealed the presence of a notable quantity of free sulphur. In the deposit in the stand-pipe the free sulphur amounted to over five per cent. This probably is to be accounted for by the action of the organic matter on the sulphates in the water, sulphureted hydrogen being produced and then absorbed by the hydrated oxid of iron formed by the rusting of the iron pipes, while the subsequent oxidation resulted in the liberation of sulphur, the action being the same as takes place when the oxid from gas-purifiers is exposed to the air.

NECROLOGY.

William H. Pancoast, M.D.

The distinguished surgeon and physician, William H. Pancoast, died at his residence in Philadelphia, January 5, after an illness of a few days. He was a son of Dr. Joseph Pancoast, professor of anatomy in Jefferson Medical College, and was born in Philadelphia, October, 1835. He completed his collegiate education at Haverford College, Philadelphia, and was graduated with the dergee of B.A. at the age of 18, subsequently receiving the degree of M.A. from the same institution. He pursued his medical studies at Jefferson Medical College and was graduated from this institution in 1856. Two and a half years following were spent in Europe, visiting the great hospitals of London, Edinburgh, Paris, Vienna, Berlin, etc., and in the pursuit of his profession and in the study of special courses. While in Paris he was a special student of Civiale, the distinguished French surgeon. He returned to Philadelphia where he commenced a general practice, but devoting himself chiefly to surgery, also to private teaching and anatomy. He was a member of the Academy of Natural Sciences of Philadelphia; fellow of the College of Physicians of Philadelphia; member of the Philadelphia County Medical Society, of which he was president in 1869; permanent member of the Pennsylvania State Medical Society, of which he was vice-president in 1870; of the AMERICAN MEDICAL ASSOCIATION, etc. His contributions to medical literature consist of articles written for various medical journals. He published a report of the surgical anatomy of the band which united the Siamese twins. He was elected visiting surgeon to the Charity Hospital, Philadelphia, in 1859—a position which he held for ten years, and during which he established a large surgical clinic. Upon his resigning that position he was elected consulting physician and placed upon the board of trustees. In 1862 he was appointed demonstrator of anatomy of the Jefferson Medical College and held that position for twelve years; was appointed lecturer on surgical anatomy in the summer school. In 1866 he was elected one of the visiting surgeons to the Philadelphia Hospital. During the absence of Professor Joseph Pancoast in Europe in 1867 and 1868 he was appointed adjunct professor of anatomy and in that season lecturing as demonstrator of anatomy, teaching operative surgery, holding surgical clinics at the Philadelphia Hospital and at the Jefferson Medical College. In 1873 and 1874 he served a second time as adjunct professor of anatomy in the Jefferson Medical College, aiding his father; and in the spring of 1874, on the resignation of his father, he was elected professor of general descriptive and surgical anatomy of that institution. During the War of the Rebellion he was appointed surgeon-in-chief and second officer in charge of the Sixth and Master Streets Military Hospital, Philadelphia; and for volunteering surgical services in the field upon three occasions during the war he was elected a member of the Loyal Legion. He was one of the founders in 1887 and professor of anatomy and clinical surgery in the Medico-Chirurgical College of Philadelphia. He was president of the Section on Anatomy of the Ninth International Medical Congress. His home was the center of hospitality and no medical gathering was quite complete without the presence of Professor Pancoast. Socially he was one of the most genial of mankind, and he will be greatly missed by the members of the AMERICAN MEDICAL ASSOCIATION, a majority of whom had the pleasure of his personal acquaintance.

Charles Frick, M.D.

BALTIMORE, Jan. 2, 1897.

To the Editor:—I send a slight tribute to the memory of Prof. Charles Frick, to whom a memorial room and library were dedicated here on the 10th ult. Professor Frick held the chair of materia medica in the University of Maryland and died March 25, 1860, from diphtheria contracted in an attempt to save the life of a poor negro girl by tracheotomy. His patient recovered by the loss of his own life after tracheotomy performed by Professor Milbenberger. Professor Frick was unquestionably the ablest and most original physician whom Baltimore has ever given to the medical profession. Prof. S. D. Gross gave an excellent memoir of him in his "Lives of Eminent American Physicians." Yours respectfully,

EUGENE F. CORDELL, M.D.

CHARLES FRICK, M.D.

Though time oft mantle of oblivion throws
O'er lives that in brightest lustre seem'd to close,
It has not yet effaced the memories thick
That cling about the honor'd name of Frick.
Him nature form'd in gentlest, manliest mold,
Unselfish, patient, modest, yet large-soul'd,
And amply gifted with those powers rare
That mark the man of genius everywhere.
Him nature taught her secrets to explore,
To penetrate disease's inmost core,
And in the crimson current's heated tide
To trace the paths where fevers lurk and hide,
To carve and clear away by methods new,
To analyse, to measure, gauge, and view
With sharpest glass, cast, pigment, granule test,
And over cell and fiber hold inquest;
Reaction to determine and to sift
The ashes of life's wear and tear for golden drift;
Naught to take on faith but all things to try
In the crucible of his own alchemy;
Authority duly to respect but thrust
From musty shelves the antiquated dust;
To grasp the essence of a thing forsooth,
And let in grateful light upon the truth.
Such was the man—his work; faithful in all
And brave, 'till came the fatal duty's call
And—ere into full noon the morn of life
Yet had ripen'd—cut short his noble strife.
Like some young lusty oak whose head doth cleave
The sky, far o'er the grove, where zephyrs heave
A purer breath, and the great king of day
Emits his brightest, first and latest ray;
When storms arise and darkness rules the air—
Save for the forked lightning's angry glare—
His ample bosom rends the bolt—although
Safe are his humble comrades far below.
These glorious lives, they are *our* heritage,
Friend, hero, benefactor, martyr, sage;
And though to them the world is so unjust,
Nor craves for them their due—memorial bust,
Nor gilds their mem'ries with immortal fame,
Such as he who for his country dies may claim,
No nobler deeds the page of history bears,
Nor lives the man who nobler does and dares.
No matter though there be danger and death,
No matter though it call for one's last breath,
May those be always found dispos'd and quick,
To do, and if need be, to die like Charles Frick!

C. E. SEGER, M.D., of New Hackensack, Dutchess County, N. Y., one of the best known physicians of the Hudson Valley, died at his home in that village December 10, after an illness of two weeks of typhoid fever. He was 54 years old. He was an alumnus of the Albany Medical College, of the class of 1863. He was health officer of the town in which he lived.

JAMES B. GILBERT, M.D., of New York city died December 9. He was born in Gilbertsville, N. Y., in 1852; was graduated from Phillips Academy, Andover, Mass., in the class of 1870, and from the medical department of the University of the City of New York in 1873. After two years in the General Hospital in Vienna he returned to that city to practice general medicine.

THEODORE GEORGE WORMLEY, M.D., of Philadelphia, died January 3, aged 70 years. His death was due to gastritis. He was born in Cumberland County, Pennsylvania. He attended Dickinson College and in 1849 graduated from the Philadelphia College of Medicine. In 1850 he went to Columbus, Ohio, and two years later he was appointed professor of chemistry and the natural sciences in Capital University, Columbus, which

position he held until 1865. While in Columbus in 1854 he was made professor of chemistry and toxicology in Starling Medical College. This he held until 1877, when he was elected to the same professorship in the University of Pennsylvania, which he occupied until his death. For eight years Professor Wormley was State gas commissioner of Ohio, and was State chemist of the Ohio geological survey from 1869 to 1874. Professor Wormley was a member of numerous scientific bodies and was a frequent contributor to scientific journals.

FRANK OBERHOLT, M.D., of Harlan, Iowa, December 9.——L. A. Lagle, M.D., of Tuscola, Ill., December 9.——J. S. Serrin, M.D., of Indianapolis, December 13, aged 65.——J. D. Pollock, M.D., of Aurora, Ill., December 14, aged 86.——S. W. Jones, M.D., of Leavenworth, Kas., December 16.——Gustavus B. Taylor, M.D., of Owensboro, Ky., December 1.——John S. Blankenship, M. D., of Rushville, Ill., December 2.——W. H. Hayman, M.D., of Chicago, December 2. He graduated from Rush Medical College in 1886.——John C. Hall, M.D., of Medical Lake, Wis., November 29, aged 75.——Walter H. Leighton, M.D., of Togus, Me., November 30.——W. M. Cochran, M.D., of Butler, Ohio, November 30, aged 33.——J. M. Rainey, M.D., of Nashville, Tenn., December 10.——K. A. Bushnell, M.D., of Little Falls, N. Y., December 24, aged 40.——Charles G. Anderson, M.D., of Belmont, N. Y., November 26, aged 62.——William Wallace, M.D., of Brooklyn, N. Y., December 23, aged 61. He was born in Ireland and was graduated from the Royal College of Surgeons in 1856 and the Royal College of Physicians in 1860. He was acting assistant surgeon in the royal navy during the Russian War and was on the staff of the Royal Infirmary and Maternity. He came to this country in 1864 and began the practice of medicine in Brooklyn.

BOOK NOTICES.

An Autumn Singer. By GEORGE M. GOULD, A.M., M.D. Philadelphia: J. B. Lippincott Company, 1897.

Those who know Dr. Gould only as a lexicographer, a leader writer, a metaphysician, or sociologist, will have a surprise in store for them when they view him as a poet.

In his prose writings we seldom see his sympathetic side. He writes prose to correct some abuse. There are so many abuses to correct, and so few with the courage to correct them!

Think of a grave physician skilled in comparative anatomy, writing like this:

"A bit of sunshine, warmed by spring,
A heart of song, a fluff of feather,
A wing put there, and here a wing,
A breath blown in—all kissed together
With sweet low croon of half-heard words,
This was the way Love made his birds!"

This is rather romantic embryology, but sentiment rarely runs smoothly with science, and the verse is sweet nevertheless.

Here speaks the philosopher:

THE SOUL'S MASQUE.

The soul is like the man in visored steel
Whose face by strange mysterious decree
He dare reveal to none, none live and see.
The body is the masque whose folds conceal,
More absolute than iron's locked anneal,
Soul-prisoner hid within, whate'er the plea,
Self's secret deep is kept more utterly
Than were it doom of death should we reveal.

And hence our piteous, awful loneliness!
Alone we live and die, and can not tell
The truth although the secret kill; unshown
Soul's face to dearest friend! More merciless,
Fate makes us mysteries to ourselves—in cell
Of flesh unknown of all, by self unknown!

Here speaks the lover to the "soft insistent breeze."

ABSENCE.

"Go, go, and kiss her hair,
Winds that run and woo;
Kiss her eyes, wonder-fair,
Say her lover 's true.

O, homing wind, o'er all the far way glide,
And tell her who waits at the window side
The curtain fluttering—beg her open free
The blinds, her arms, her heart, to us, to me.
Blow, blow and stronger blow,
Wind from out the south;
Kiss her eyes, and below—
Tenderly—her mouth."

One of the prettiest things in the book is the following:

JUNE.

"As soft as silence is the moon;
The leaves of every tree are stilled;
The trees are full of love and swoon
To joyous sleep, with dreams fulfilled,
While high and faint the half-heard croon
And lullaby of day, distilled
To monotone of ending tune,
Drops softly down to dream unthrilled
Of aught except the bliss and boon
Of Heaven that broods, and God who willed
That earth beloved should be of June."

In the brief space of a book notice we can do no more than reprint the foregoing extracts as samples of the goodly contents of Dr. Gould's newest book, and to compliment the author on the production of a work which abounds in the true spirit of poesy, which with tender sympathetic touch reveals nature itself. Whatever may be the conclusion of the literary critic concerning the versification, none can doubt the sincerity, the wisdom, and the virility of the sentiment underlying the verses. We hope that Dr. Gould will not rest here, but continue to sing as taught by the Muse, who according to Homer "loves the harmonious race" of poets, notwithstanding the advice of Horace, that a new poet should keep his manuscript in his portfolio nine years before publishing.

Eating and Drinking. The alkalinity of the blood, the test of food and drink in health and disease. By ALBERT HARRIS HOY, M.D. Cl. 8vo, pp. 303. Price $1.50. Chicago: A. C. McClurg and Company.

This book is a well written monograph on dietetics from a rather narrow standpoint, but an entirely sound one. It contains an introduction and six chapters as follows:

I. Air, water and food, and the relation of vegetable to animal life. II. How food is digested. III. The effect of different kinds of food on the blood. IV. The food of primordial man. The classification of fruits, and the proper and improper use of them. V. Drinks, harmless and harmful. VI. Food and its effects on the alkalinity of the blood. The work is intended more for physicians than for the general public.

The author follows Haig closely in his belief in the universality of the uric acid diseases and the necessity for the administration of alkalies. He opposes the use of fruit in all such conditions and goes to the verge of radicalism against what he calls artificial fruits.

Nevertheless, the book is highly instructive, and well worthy a place in the medical library. The author shows a thorough familiarity with his subject.

The Diseases of the Male Urethra. By R. W. STEWART, M.D., M.R.C.S. Pp. 221. Illustrated. New York: William Wood and Company. 1896.

This little book is one of the "Medical Practioner's Library" series, and bound uniformly with the other volumes of the series.

"With the advent of improved instruments for intra-urethral inspection, together with the general advancement in our knowledge of bacteriologic and pathologic subjects, a new era in urethral pathology has been ushered in and many radical advances have been made not only in the pathology but also in the treatment of urethral diseases." The author is conservative in the main and his advice is sound. We entirely agree with him in regard to the letting alone of strictures of large caliber.

The chapter on epididymitis is defective in diagnosis; the author assumes apparently that all cases of epididymitis are due to invasion of the gonococcus. He nowhere mentions that very many cases of tubercular epididymitis exist and that in every case of tubercular testicle the first signs have been seen in the epididymis, and that such cases being frequently accompanied with discharge through the urethra, are too often mistaken for gleet. The book is an excellent one and we cheerfully commend it.

ASSOCIATION NEWS.

Section on Physiology and Dietetics.—It is the earnest desire on the part of the managing officers of this Section that its work at the coming meeting in Philadelphia shall be attended with success.

The field in which subjects for contributions may be chosen will, on a little reflection, be seen to be large and varied.

It is therefore hoped that the members of the AMERICAN MEDICAL ASSOCIATION who are expecting to attend this semi-centennial meeting will be free to make contributions to this Section, and that they will send at an early date the titles of their papers to my address or to that of Dr. E. Cutter, the Secretary, Equitable Building, New York City.

AUGUSTUS P. CLARKE, M.D., Chairman.

825 Massachusetts Avenue, Cambridge, Mass.

SOCIETY NEWS.

The Congress of Internal Medicine to be held at Berlin next June, will discuss chronic articular rheumatism, address by Bäumler; epilepsy, Unverricht, and morbus Basedowii, Eulenberg.

The Pan-American Congress.—Between four and five hundred members attended the congress and enjoyed the hospitality of the City of Mexico and its beautiful scenery while participating in the great scientific meeting, which draws the ties between the great nations of the two Americas closer together. The wonderful energy and progress of Mexico in the last decade in scientific matters was duly acknowledged, and her enlightened government congratulated. An international committee of public health suggested by Dr. Trader was voted and organized *ex profeso*, its principal duty at present to draw up an international sanitary code. In the Section on Medicine, after the address on serotherapy by Dr. Lavista, various papers were read on malaria and its treatment. The physicians of the City of Mexico declared that no cases were known there except those contracted elsewhere. Dr. Bedford Brown's address is given in full in the JOURNAL, Vol. xxvii, p. 1319. Dr. Terrés (Mexico) observed that those unaccustomed to such tasks found it difficult to distinguish the Laveran plasmodium in the blood, and that it was sufficient for all practical purposes to note the coffee-colored pigment and the granulations, either free or inclosed in spherical bodies. He added that the quinin should be administered as soon as the diagnosis is established, as he considers it an error to wait to give it previous to the recurrence. He has never observed glycosuria consecutive to malarial attacks. Dr. Bibb stated that the semilunar forms of Laveran's parasite were characteristic of pernicious malaria, but Dr. Terrés denied this, having found them frequently in the course of his 500 examinations of the blood of malarial subjects, and never corresponding to malignant types. Physicians of Mexico and Cuba denied the existence of latent forms of paludism, as the characteristic elements are missing in the blood in what are known as the latent forms. Coronado (Havana) urged the establishment of an American pyretology, which is entirely distinct from the European pyretology. Tuberculosis was also studied from various points of view, Dr. Crook (New York) recommended creosote as very successful in his experience. He gives 25 to 60 drops in twenty-four hours, combined with cod liver oil, and the germs disappear from the sputa as the treatment progresses. Altamirano (Mexico) considers intestinal tuberculosis a contra-indication to the use of creosote, and as it is painful administered hypodermically he substitutes guaiacol for it. Terrés always administers the creosote by the rectum, combined with cod liver oil and the yolks of eggs. Its beneficial action is most evident in this way. Dr. Holmes (Denver) described his method of early diagnosis of tuberculosis before any of the typical symptoms appear, by microscopic examination of the leucocytes, which show the characteristic disorganization of the tissues in this disease by their altered shape and certain special micro-chemic spots. The fact was mentioned that tuberculosis in the Mexican mesa was essentially a long, chronic disease, extending over fifteen to thirty years and never acute. The especial benignity of pulmonary affections in San Diego, Guanajuato, was the subject of an address by Dr. Cano. Yellow fever was also discussed by experts, and the value of investigation of the toxicity of the urine for the prognosis established. Dr. Pepper addressed the congress on the subject of the cathode ray in thoracic aneurysm, and presented the fine set of photographs he exhibited to the N. School of Medicine. He dwelt upon the great advantage to be derived from the cathode photographs in the cases of aneurysm, especially when all symptoms point to an aneurysm, and still the photograph shows the organ intact. Dr. Llambias of the Argentine Republic describes the anatomic causes of ruptures of the aorta, which he ascribes to previous alteration in the arterial walls, and not to traumatism. Dr. Debayle of Nicaragua described his method of saturating the tissues with antiseptics by immersing the part or the whole body in a continuous bath, which has given him very satisfactory results, in gangrene especially. The amount of antiseptics employed must be less than the toxic dose, and the state of the patient carefully watched, especially the renal excretions, which must be examined for traces of the antiseptic fluid. The congress was also requested to enlighten an individual presented by Dr. Ortiz of Morelos in regard to his or her sex, a peculiar case of pseudo-hermaphrodism, who left the hall a man. The section adjourned after papers had been read by Dr. Kellogg on the treatment of chronic diseases by diet and exercise, by Dr. Curtin of Philadelphia on the importance of heredity in the etiology of Graves' disease, by Dr. Debayle of Nicaragua on tricuspid insufficiency of reflex gastro-intestinal origin, mentioning the diagnostic importance of the accentuation of the second sound and of the right "galloping sound," and by others. The congress will convene next at Caracas.—*Rivista Quincenal*, December 1.

MISCELLANY.

The First Hydrotherapeutists, and the most extreme and successful in enforcing their views upon mankind, were Mohammed and Moses, who even incorporated hydrotherapy in their religions, states the December *Janus*.

The Parthenon at Athens, which has been in danger of falling into total ruin for some years owing to the action of the recent earthquakes, is now being repaired by a commission acting under the authority of the Greek government.

Serotherapy of Smallpox.—*O Brazil Medico* states that the President of the Republic has summoned Dr. Caldas to Rio Janeiro to investigate the results of his application of the serotherapeutic processes to smallpox, with which he claims to have been very successful.

Congenital Anonychia.—Jacob of Berlin describes a case of three children in one family, all otherwise healthy and well developed, and of robust parentage, who have no traces of nails on either fingers or toes, except on one finger in one girl. —*Deutsche Med. Woch.*, December 10.

Dry or Mummy Preparations.—Bruns recently exhibited a valuable set of limbs, especially adapted for educational purposes, which he had prepared by soaking them in undiluted alcohol for a quarter of a year, and then merely hanging them up in the air to dry for another three months. By renewing the alcohol frequently the length of time they are soaked can be shortened.

Experimental Study of Thoracic Surgery.—Quenu and Longuet have secured interesting results by compelling animals to breathe with their heads in a balloon filled with compressed air at a high pressure and then opening a flap in their thorax. The lung bulged out, pink and convex, still breathing regularly. It was easy to palpate the entire organ by slipping the hand inside the opening. The respiration remained normal, without asphyxia or syncope, and the lung seemed to effect its own hemostasis in the hernia when it was incised.—*Bulletin Médical*, December 5.

Paradoxical Action of Lavage of the Blood.—Carrion and Hallion have been studying the diuresis produced by injections of

NaCl, 6 to 9 grams per 1000. They assert that numerous tests before, during and after the injections have proved that when the urinary secretion is most abundant the elimination of urinary substances, aside from the NaCl, diminishes to a very small proportion. The chlorid of sodium seems to take the place of the other elements.—*Bulletin Médical*, December 5.

Male versus Female Clerks.—According to English statistics, the number of days lost in their work by the government employes on account of slight indispositions, was 154 by the women to 100 by the men. In France the proportion is even larger, being 174 by the women to 100 by the men.

A Vast Pill Business.—We note an item among other interesting bits of news transmitted by the news gatherers of the daily press, that the business of a certain patent-pill nostrum in New York city, was sold to an English syndicate for $2,000,000! The former manager of this pill factory, we are informed, is to be retained for five years by the new company at an annual salary of $50,000! "*O dura Messorum ilia.*"

A Surgeon on the War Path.—Lepelletier had occasion recently to address the graduates of the military school at St. Cyr, France, and called upon them "to arise in their might and as surgeons of the honor of France, perform *rhinoplasty* upon the territory of their fatherland, and restore the flap of living flesh so brutally severed by the conquering Germans!"

Tuberculosis of the Inferior Maxillary Bone.—In all the cases treated in Czerny's clinic during the last twelve years there have only been eight undoubted cases of tuberculous affections of the lower jaw. As medical treatment proved ineffective, he advises prompt resection as soon as the diagnosis is certain, in young persons, and in elderly patients, cleaning out the cavity, followed by resection if necessary later.—*Centralbl. f. Chir.*, December 12.

Permanently Slow Pulse.—Brissaud describes at length in the *Presse Méd.* of November 21, a peculiar case of facial paralysis with genital and prostatic lesions of probable tuberculous etiology, which establishes once more the exclusively bulbar origin of a morbid permanently slow pulse. He mentions the fact that Napoleon had only 42 pulsations to the minute, but this was normal and does not come under the head of bradysphyxia, as the morbid condition is called.

Blatta Orientalis in Medicine.—At a certain London hospital a patient was given some extract of malt with instruction to take a teaspoonful twice a day, commencing on the following morning, and to report himself at the end of a fortnight. At the expiration of this time he returned and said to the physician, "Please, sir, am I to go on taking them insects you gave me?" "Insects," said the physician, "what insects?" "Why, them cockroaches, sir. I've taken one night and morning in a teaspoonful of the sticky stuff." Inquiry elicited that the cockroaches had not been dispensed, but had got into the jar during the first night of its stay in the patient's house.

Calliano's Method of Artificial Respiration.—Calliano has simplified the familiar Sylvester method of artificial respiration, which requires two persons to accomplish and is liable to produce injuries in the hands of the unskillful, by tying the hands of the asphyxiated person together behind his head with a handkerchief. This expands the chest and produces the inspiration of the Sylvester method. All that is necessary now is to expel the air by compressing rhythmically the thorax with the two hands, eighteen to twenty times a minute, and thus alternate expiration with the mechanically produced inspiration.—*Gazzetta d. Osp. e d. Clin.*, No. 98.

The Thomson Case.—A Miss Thomson died recently in the private office of Dr. Boisleux of Paris, in the course of an operation, and her lover, Mr. Mansuy, committed suicide when the news reached him. The authorities refused to issue a burial permit and examination of some letters raised the suspicion of a criminal abortion. Dr. Boisleux and the physician who accompanied Miss Thomson to his office and assisted at the operation, were arrested and are now in prison, while a committee of experts, including Professor Brouardel, the dean of the Faculté, are investigating the case. The first lesson to be drawn from it in the meanwhile, according to the *Journal de Paris*, is never to perform any important gynecologic operations in one's private office.

No Inquest Authorized.—The supreme court of Georgia declares, in the case of Meads, Coroner, v. Dougherty County, July 13, 1896, that there is no law in that State which either requires or authorizes a coroner to hold an inquest over "a lot of bones, bleached by time," constituting parts of a human skeleton casually found upon the bank of a creek, it being obviously impossible to ascertain who the deceased was, how long since death ensued, or in what manner it was caused. Such bones do not constitute "a dead body" within the meaning of the act of Dec. 18, 1893, relating to coroners' inquests. And the interment of such bones in a "soap box, without expense to any one," the court further holds, does not entitle a coroner to the fee of $15 prescribed in section 3701 of the Code "for furnishing coffin and burial expenses."

Quack Sentenced.—An alleged "homeopathic" practitioner has been carrying on an immense business in Germany, dispensing drugs by mail all over Europe, claiming to cure coughs, stomach and liver troubles, etc., with a host of employes who prepared the medicines in the rear rooms of his fine pharmacy, which he kept open as a blind. He has been condemned to four years and a half in prison, with a large fine and the suspension of his civil rights for five years. His advertising bills amounted to over 160,000 marks annually. Another celebrity of the kind is still prospering, the "Miracle Doctor" Ast, as we notice that he has just purchased an estate, for 225,000 marks, which confers several knightly privileges upon its owner in the local legislature.—*Deutsche Med. Woch.*, December 12.

Dyspepsia in the Etiology of Chlorosis.—The frequency of dyspeptic disturbances in chlorosis is familiar to all, but Mongour states that they are the actual cause, and that appropriate treatment, milk diet, daily lavage of the stomach, etc., without the specific iron medication will cure the chlorosis with no further treatment. If the patients resume their old habits of life and diet, the chlorosis may reappear, but appropriate stomach treatment will conquer it again, while the "usual martial treatment of chlorosis entails the complete destruction of the glandular apparatus of the stomach and an irremediable chronic lesion." His arguments as set forth in the November *Archives Clin. de Bordeaux*, with numerous observations, are certainly worthy of consideration.

Must Show Amount Expended.—In the personal injury case of Fry v. Hillan, where $350 was claimed for drugs and medical attendance, there was no proof as to the amount so expended, only testimony of the plaintiff that he had employed doctors for a long time. Under these circumstances, the court of civic appeals of Texas holds, October 14, 1896, that it was error to instruct the jury that they might find for the amount expended for medical attention and drugs, as the jury might conclude from it that they were authorized to allow what they saw proper whithout any testimony as to the amount, whereas that is not true.

Annual Distribution of Prizes at the Paris Academie de Medecine.—Beside the Saint Paul prize of 25,000 francs divided between Roux and Behring, over $11,000 were distributed among the successful competitors, most of them French professors, internes and students. Many of the prizes were divided among two or more, and large numbers received honorable mention for their contributions. We notice among these the names of S. A.

Knopf of New York, Claus of Antwerp, Ehlers of Copenhagen, Lambros of Athens, Stricht of Ghent and Arthus of Freiburg. Other foreigners honored were Brun of Beyrouth, several physicians in the colonies, M. and Mad. Christiani, M.D., of Geneva; Theremin of St. Petersburg, Duvigneau of Cochin China, Matignon of Pekin and Felix of Brussels. The largest undivided prize was awarded to Gilles de la Tourette, 3,000 francs.

A Contribution to the Question of Cheap Living.—An article in the *Deutsche Med. Woch.* of December 3 describes the methods of preparing the family meal which have prevailed for three generations in certain Thuringian towns to the satisfaction of all. Each family has one or more earthen crocks and these are filled with materials for the family dinner and taken to the baker, who places them in his oven after he has baked his bread for the day. The heat is sufficient to cook the meat, potatoes, vegetables, etc., in the crock slowly and evenly, so that when the family call for the crock on their way home from church or work, they have an appetizing and wholesome hot dinner ready for them at the trifling expense of 3 pfennigs, the baker's charge. As every family does the same, there is nothing derogatory in the practice. An English friend informs us that the same practice is current in Cumberland to a certain extent and that she has a most vivid remembrance of the delicious odors that proceeded from the crocks the millhands were carrying home on their return from work as she passed them on her way from school.

Bravery of Military Surgeons in Cuba.—From the *Revista des Sanidad Militar* of Nov. 15, 1896, we learn that on August 21 last a board of army medical officers was convened in Havana, Cuba, to consider the various acts of heroism officially reported as having been performed during the present war in Cuba, by army medical officers, and to determine to whom should be adjudged a purse which had been offered by a retired medical officer, D. Eduardo Pérez de la Fanosa, now residing in Madrid, Spain, to the medical officer who had most distinguished himself in the line of duty on the field of battle. In offering the purse the donor stated that while it was perhaps of small intrinsic value it represented his affectionate regard for the corps to which he had for so long belonged. The secretary of the board read reports from all parts of the island which showed there was no lack of praiseworthy acts to the credit of the army medical department. Many of these reports related to deeds of which members of the board had personal knowledge. After due consideration the board reached the unanimous opinion that the deeds which should be singled out for this special mark of commendation were those performed July 5, 1896, by Dr. Jerónimo Durán y Cottés. On that day the batallion of Antequera, 600 strong, Lieutenant Colonel Escudero commanding, encountered at Hato-Jicarica, Matanzas, a force of 3,000 insurgents under various leaders, among whom were Lacret and Clotilde Garcia. In the fight Dr. Durán, the medical officer of the batallion, was struck by a Mauser bullet while dismounting to attend a wounded man. The ball penetrated the center of the popliteal space and traversing the joint made its exit on the left side of the patella. The bleeding was so free that it was feared the popliteal artery was injured; but notwithstanding this, Dr. Durán proceeded with his work after applying his handkerchief as an extemporized tourniquet to restrain hemorrhage. He had the wounded brought to the place where he had been disabled and attended to them. Sixteen men were brought in. Among them were a soldier wounded in the abdomen, with protrusion of the intestine requiring reduction and suture of the abdominal wall; a case of hernia of the testicle requiring closure of the scrotum; a wound of the gluteal region from which the bullet had to be extracted, and a fracture of both bones of the leg, which was reduced and immobilized by splints of Mauser bayonets. After the fight the Doctor started for Havana, but was unable to complete his railroad journey. He went into hospital at Matanzas, where he remained under treatment twenty days. The board appointed September 15 as the day on which the formal and public presentation to Dr. Durán would be made.

Louisville.

Yearly Health Report.—Health Officer White has just submitted his report for the year 1896, and it contains some interesting facts. The mortality report is as follows: Estimated population 211,100; total number of deaths, 3,206; white, 2,347; colored, 859. Annual death rate per 1,000 inhabitants, 15.1; average death rate, white (population 173,600) 13.5; colored (population 37,500) 22.9. Consumption caused 389 deaths, typhoid fever 96, pneumonia 251. There were 353 cases of diphtheria placarded with 72 deaths during the year, showing a mortality of slightly over 20 per cent.; 340 cases of scarlet fever were placarded with a mortality of 4.1; 1,383 vaults were cleaned during the year, 776 diseased cattle killed; 5,580 diseased cattle condemned and sent from the city; 2,457 cases were vaccinated. There were 304 more deaths during 1895 than during the past year. The number of deaths from typhoid fever alone is a fairly good method of estimating the health of the city. During 1895 there were 195 deaths from this cause, or 77 per 100,000 of the population, during 1896 there were 96 deaths from typhoid fever, or 45 per 100,000, a reduction of 37 per 100,000. This decrease in typhoid fever is attributed by the Health officer to the much improved sanitary condition of the city, which has been made possible by the numerous sanitary regulations which have originated in the health office and which the officer in charge has been enabled to enforce. Among these may be mentioned better sewer connections, which has been one of the chief objects of the department during the year; inspection of the milk; placarding the buildings in which there are infectious or contagious diseases, though typhoid fever is not included in the list of diseases to be placarded at present; enforcement of a sanitary nuisance ordinance; the flushing and thorough cleaning of the Water Company's reservoirs, the first time in eleven or more years; a vigilant supervision of the city well-water, frequent tests being made by careful analyses.

Dr. Charles Groves was thrown from a buggy and in the fall, sustained a compound Pott's fracture of the right ankle, which may result in the loss of his foot, though there are hopes that this will not prove necessary.

City Sued.—A suit was brought recently against the city by the Nazareth Literary and Benevolent Association, for $250, claimed to be due for services rendered by four sisters of charity at the Eruptive Hospital. These sisters were removed by the general council soon after its election and salaried nurses employed when necessary. Shortly after this the above organization brought suit for the sum named, and in the common pleas division of the court were adjudged the amount asked for. Soon after the city attorney entered a motion for a new trial, the existence of a contract being denied by him.

Spring and Summer Schools.—The Kentucky School of Medicine and the Hospital College of Medicine began their annual sessions on the first of January, both with large classes. The faculty of the former school instead of the regular lectures on New Year's day gave a reception to the students and their friends during the afternoon, which was largely attended. The Gray Street Infirmary, connected with the Hospital College has been completed in time for the opening of the session and will add very much to the teaching facilities of the school. Students entering the colleges this year must attend four courses of lectures before they can graduate.

Physicians' License.—When the bills for licensing physicians were presented some time ago ($10 a year when the income is less than $2,000; $20 when between $2,000 and $5,000; $40 when between $5,000 and $10,000 and $100 when over

$10,000), Dr. J. M. Mathews, President of the State Board of Health, on behalf of the physicians of the city, brought suit against the city and the Sinking Fund Commissioners, to prevent the collection of these licenses, on the ground that it was unconstitutional. Judge Toney on the 2d inst. in joint session handed down an opinion covering twenty-five pages of typewritten matter, in which he decides in favor of the plaintiff and overrules the demurrer entered by the defendant at the time the suit was brought. The tax was originally imposed by the council on physicians, surgeons, architects, veterinary surgeons, chiropodists and civil engineers. The judge said in part as follows: "The first question that presents itself is: What is the real legal character of this tax? Certainly it is not a police regulation. If it was a police regulation the ordinance would be manifestly void, upon familiar principles of law. It is strictly a revenue ordinance, wholly disassociated from any purpose of police regulation. It is a tax not upon property, nor upon income, but upon the calling or profession of medicine or surgery. It is competent undoubtedly for the legislature, if it sees fit, to tax his income, which is a wholly different thing from the privilege which as a citizen he enjoys of trying to earn an income in his particular calling. Still the question under consideration admits the power of the State to restrict or prohibit the natural right of the citizen to follow his calling, business or occupation as a physician, unless and except upon payment of a privilege tax first be made. The right to earn a living or an income is not a grant from the State, nor from the city, but it is a natural and inalienable right, inherent in every man. It is not transferable nor subject to seizure, nor vendible under execution. In other words, it is not property, in any just or legal sense of the word. It antedates the formation of society or government, and is therefore a natural, absolute right. But the State has power, undoubtedly, for the purpose of revenue, to lay a restriction on this natural right and to prohibit the citizen from enjoying it until and except he pay, as a condition precedent, a license or privilege tax so to do. And the State has also the right and power to delegate to city, municipality, this branch of sovereignty, in fact raise revenue for the purpose of defraying the expenses of the municipal government. The character, extent, and scope of the delegated power of taxation distinctively and exclusively depends upon the language of the statute delegating such power. It is plain from the sections 3 and 40 of the ordinance that the license fee or privilege tax in dispute is not a tax on the income of the plaintiff; that is, a tax on the amount of money which he had earned in his profession the previous year, or which he may or may not earn in the year which the license is required to be taken out. He may decline to further practice his profession, in which event the city makes no demand whatever for what he had earned the year previous, and he would have to pay nothing for having practised his profession and having earned an income from it the year before. This may properly be termed a privilege tax on the privilege of earning a living by his particular profession." As to the proposition of the ordinance to grade the tax, the Judge says: "The palpable injustice and inequality of the classification is strikingly apparent in the first and fourth of said classes. One whose yearly business amounts to less than $2,000 shall pay a yearly license of $10. Is it equal or just that the physician or surgeon just commencing, and who perhaps the first year of his practice does not make $100, shall pay the same license as one who has practised several years, whose business amounts to $1,900? Is it equal or just that one whose yearly business amounts to $10,000 shall pay the same amount as license as one whose yearly business amounts to $50,000? Yet such is the justice, uniformity and equality of the personal classification of physician and surgeon sought to be established in section 3. If there is to be a personal classification, with a corresponding scale of license tax upon the right of physicians and surgeons to earn a livelihood in their profession, such classification and scale or graduation of license or privilege tax should be intrinsically uniform and just. Thus viewed, section 3 of the ordinance is not only unreasonable, but unequal and unjust, arbitrary and irrational."

Hospitals.

THE INFANTS' HOSPITAL on Randall's Island, N. Y., is to be investigated by the grand jury. During the last three years the annual death rate has averaged about 43 per cent.——Owing to a disagreement with the board of trustees of the New York Medical College and Hospital for Women, the staff and nurses of this institution have resigned.——The New York Polyclinic Hospital was damaged by fire December 25. The patients were moved without loss of life. Loss about $50,000.

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Dec. 26 to 31, 1896.

Major William C. Shannon, Surgeon (Ft. Custer, Mont.), leave of absence granted on surgeon's certificate of disability is extended three months on surgeon's certificate of disability.

Capt. William L. Kneedler, Asst. Surgeon (San Diego Bks., Cal.), leave of absence granted for seven days is extended twenty-three days.

Major William R. Hall, Surgeon, relieved from duty at Whipple Bks., Ariz., and ordered to Washington, D. C., for duty.

First Lieut. Irving W. Rand, Asst. Surgeon, relieved from duty at Ft. Clark, Texas, and ordered to Ft. Huachuca, Ariz., for duty.

First Lieut. Alexander S. Porter, Asst. Surgeon, relieved from duty at Ft. Huachuca, and ordered to Whipple Bks., Ariz.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for two weeks ending Jan. 2, 1897.

P. A. Surgeon R. M. Kennedy, ordered to the naval hospital, Norfolk, Dec. 28.

Surgeon Charles T. Hibbett, ordered to the Norfolk navy yard, Dec. 22.

Surgeon N. McP. Ferebee, detached from the Norfolk navy yard and ordered to hold himself in readiness for sea.

Surgeon R. Whiting, detached from the "St. Mary's" and ordered before the retiring board at Washington Dec. 28, then placed on waiting orders.

P. A. Surgeon R. P. Crandall, detached from the naval hospital, New York, and ordered to the "St. Mary's."

Asst. Surgeon L. Morris, ordered to the "Essex."

P. A. Surgeon A. R. Wentworth, detached from naval hospital, Portsmouth, N. H. on relief, and ordered to the "Marblehead."

Surgeon E. H. Green, detached from the "Marblehead" on reporting of relief and ordered to naval dispensary at Washington, D. C.

P. A. Surgeon H. B. Fitts, ordered to naval hospital, Portsmouth, N. H.

Surgeon A. C. H. Russell, detached from the naval medical examining board, New York, on relief, and hold himself in readiness for the "Lancaster."

Surgeon J. M. Edgar, detached from the "Saratoga" and ordered to the "Vermont."

Surgeon H. Wells, detached from the "Vermont" on relief and ordered as member of naval examining board, New York.

P. A. Surgeon W. C. Braisted, detached from the "Columbia" and ordered to the naval hospital, Newport, R. I.

Change of Address.

Duncan, W. E., from Aberdeen, S. D., to 603 W. 63d St., Chicago, Ill.

Fortier, J. J., from Chicago, Ill., to West Superior, Wis.

Lockwood, W. D., from Eureka, S. D., to Rock Port, Mo.

McDaniel, E. D., from Milton, Fla., to Mobile, Ala.

Meany, W. B., from 2602 Locust St. to 3907 W. Belle Place, St. Louis, Mo.

Monette, G. N., from 1620 Calliope St, to 1124 St. Charles St., New Orleans, La.

Oneal, Oren, from Wabash, Ind., to 291 Ontario St., Chicago, Ill.

Paine, H. M., from West Newton, Mass., to 69 N. Forsyth St., Atlanta, Ga.

Whitman, C. H., from Mt. Pleasant Hotel to 529 S. Broadway, Los Angeles, Cal.

LETTERS RECEIVED

Adams, Ovid L., Shelbyville, Ind.; American Therapeutic Co., New York, N. Y.

Boehringer, C. F. & Soehne, New York, N. Y.; Butler, T. J., (2), Lockport, Ill.; Benesch, A. B., Publishing Co., St. Louis, Mo.; Bacon, James, Philadelphia, Pa.; Bovinine Co., The, New York, N. Y.

Condon, W., Humphrey, Neb.; Carroll, Dr. Mrs. A. M., East Branch, Pa.; Chambers, J. H. & Co., St. Louis, Mo.; Castle, Wilmot & Co., Rochester, N. Y.; Cullen, C. W. & Son, Cullen P. O., Va.; Columbus Phaeton Co., Columbus, Ohio; Cook, G. F., Oxford, Ohio.

Dombrowski, J. P., Peoria, Ill.; Draper, J. B., Oswego, Kan.

Eaton, Miss.; Eaton, Roy R., Lowell, Mich.

Fletcher, M. H., Cincinnati, Ohio; Flagg, Chas. E. B., Fort Duchesne, Utah; Fassett, C. W., St. Louis, Mo.; Fortnightly Press Co., The, St. Louis, Mo.

Goss, E. L., Sheffield, Iowa; Gordan, W. S., Richmond, Va.; Globe Mfg. Co., Battle Creek, Mich.

Heppner, A. H., Brooklyn, N. Y.; Harvey Medical College, Chicago Ill.; Hay, E. C., Hot Springs, Ark.; Hummel, A. L., Adv. Agency, New York, N. Y., (2); Hilly, M. B., Chicago, Ill.; Heise, W. F. C., Chicago, Ill.

Ingals, E. Fletcher, Chicago, Ill.

Jelks, J. T., Hot Springs, Ark.; Jackson, H. A., Searsboro, Iowa; Jenkins, S. A., Zanesville, Ohio; Jegi, H. A., Arcadia, Wis.

Koch, Chas. & Co., New York, N. Y.; Koechl, Victor & Co., New York, N. Y.; Keyes, T. B., Chicago, Ill.; Kennedy, Samuel, Shelbyville, Ind.; Klebs, A. C., Citronelle, Ala.

Lapsley, R. M., Keokuk, Iowa; Latta, S. W., Philadelphia, Pa.; Lord & Thomas, Chicago, Ill.

Murphy, J. B., Chicago, Ill.; McShane, B. E., Hales Corners, Wis.; Moore, D. L., Columbus, Ohio; McClelland, C. B., Champaign, Ill.; Marchand, V. H., Haubstadt, Ind.; McBride, D. H. & Co., Chicago, Ill.; Mellier Drug Co., St. Louis, Mo.; Merrick, M. B., Passaic, N. J.; Mitchell, W. F., Lancaster, Mo.; Morrison, Joseph B., Maryville, Mo.; Meiklejohn, Julia, Elgin, Ill.

Neilson, T. B., Philadelphia, Pa.; Nicholson, W. A., Franklin, Pa.

Ogden, H. V., Milwaukee, Wis.

Peacock Chemical Co., St. Louis, Mo.; Parmele, C. R. Co., New York, N. Y.; Perkins, Louis J., Pendleton, Ore.

Rigaud & Chapoteaut, New York, N. Y.; Riley, W. H., Boulder, Colo.

Steiger, E. & Co., New York, N. Y.; Sullivan, G. M., La Belle, Mo.; Schieffelin & Co., New York, N. Y.

Todd, Wm. J., Mt. Washington, D. C.

Weber, William, Columbia City, Ind.; Woodruff, J. C., Charleston, S. C.; Weiland, F. W., Dubuque, Iowa.